

BDE SPECIAL PROVISIONS  
For The August 1, 2003 Letting

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An \* indicates a new or revised special provision for the letting.

| <u>File Name</u> | <u>#</u> | <u>Special Provision Title</u>   | <u>Effective</u> | <u>Revised</u> |
|------------------|----------|--|------------------|----------------|
| 80099            | 1        | Accessible Pedestrian Signals (APS)  | April 1, 2003    |                |
| 80052            | 2        | Adjusting Frames and Grates  | Aug. 1, 2001     | Nov. 1, 2001   |
| 80076            | 3        | Allowable Lane Differential  | July 1, 2002     |                |
| 80093            | 4        | Articulated Block Revetment Mat  | Jan. 1, 2003     |                |
| 7254I            | 5        | Asbestos Waterproofing Membrane and Asbestos Bituminous Concrete Surface Removal | June 1, 1989     | June 30, 1994  |
| 80065            | 6        | Bituminous Base Course/Widening Superpave  | April 1, 2002    | Jan. 1, 2003   |
| 80050            | 7        | Bituminous Concrete Surface Course   | April 1, 2001    | April 1, 2003  |
| 80066            | 8        | Bridge Deck Construction   | April 1, 2002    | Aug. 1, 2002   |
| 5026I            | 9        | Building Removal-Case I (Non-Friable and Friable Asbestos)                       | Sept. 1, 1990    | Aug. 1, 2001   |
| 5048I            | 10       | Building Removal-Case II (Non-Friable Asbestos)                                  | Sept. 1, 1990    | Aug. 1, 2001   |
| 5049I            | 11       | Building Removal-Case III (Friable Asbestos)                                     | Sept. 1, 1990    | Aug. 1, 2001   |
| 5053I            | 12       | Building Removal-Case IV (No Asbestos)   | Sept. 1, 1990    | Aug. 1, 2001   |
| 80031            | 13       | Calcium Chloride Accelerator for Portland Cement Concrete Patching               | Jan. 1, 2001     |                |
| 80077            | 14       | Chair Supports   | Nov. 1, 2002     | Nov. 2, 2002   |
| * 80051          | 15       | Coarse Aggregate for Trench Backfill, Backfill and Bedding                       | April 1, 2001    | Aug. 1, 2003   |
| 80094            | 16       | Concrete Admixtures  | Jan. 1, 2003     |                |
| 80078            | 17       | Controlled Aggregate Mixing System   | Nov. 1, 2002     |                |
| * 80102          | 18       | Corrugated Metal Pipe Culverts   | Aug. 1, 2003     |                |
| 80029            | 19       | Disadvantaged Business Enterprise Participation                                  | Sept. 1, 2000    | Oct. 1, 2002   |
| 43761            | 20       | Driving Guardrail Posts  | April 1, 1998    |                |
| 80100            | 21       | Epoxy Coatings for Steel Reinforcement   | April 1, 2003    |                |
| 31578            | 22       | Epoxy Coating on Reinforcement   | April 1, 1997    | Jan. 1, 2003   |
| * 80041          | 23       | Epoxy Pavement Marking   | Jan. 1, 2001     | Aug. 1, 2003   |
| 80055            | 24       | Erosion and Sediment Control Deficiency Deduction                                | Aug. 1, 2001     | Nov. 1, 2001   |
| * 80103          | 25       | Expansion Joints   | Aug. 1, 2003     |                |
| 80101            | 26       | Flagger Vests  | April 1, 2003    |                |
| 80025            | 27       | Fluorescent Orange Sheeting on Drums   | Nov. 1, 2000     | Jan. 1, 2003   |
| 80079            | 28       | Freeze-Thaw Rating   | Nov. 1, 2002     |                |
| 80072            | 29       | Furnished Excavation   | Aug. 1, 2002     |                |
| * 80104          | 30       | Inlet Filters  | Aug. 1, 2003     |                |
| * 80080          | 31       | Insertion Lining of Pipe Culverts  | Nov. 1, 2002     | Aug. 1, 2003   |
| * 80067          | 32       | Light Emitting Diode (LED) Signal Head   | April 1, 2002    | Aug. 1, 2003   |
| 80081            | 33       | Lime Gradation Requirements  | Nov. 1, 2002     |                |
| 80068            | 34       | Material Allowances  | Dec. 1, 2001     |                |
| 80045            | 35       | Material Transfer Device   | June 15, 1999    | March 1, 2001  |
| 80082            | 36       | Multilane Pavement Patching  | Nov. 1, 2002     |                |
| * 80069          | 37       | Organic Zinc-Rich Paint System   | Nov. 1, 2001     | Aug. 1, 2003   |
| 80013            | 38       | Pavement and Shoulder Resurfacing  | Feb. 1, 2000     | Aug. 1, 2002   |
| 21982            | 39       | Pavement Removal   | Jan. 1, 1999     | Nov. 1, 2001   |
| 53600            | 40       | Pavement Thickness Determination for Payment                                     | April 1, 1999    | Aug. 1, 2000   |
| 80022            | 41       | Payment to Subcontractors  | June 1, 2000     |                |
| 80056            | 42       | Placement of Arrow Boards  | Aug. 1, 2001     |                |
| 80073            | 43       | Polymer Modified Emulsified Asphalt  | Nov. 1, 2002     |                |
| 80083            | 44       | Portland Cement Concrete   | Nov. 1, 2002     |                |
| * 80036          | 45       | Portland Cement Concrete Patching  | Jan. 1, 2001     | Aug. 1, 2003   |
| 80095            | 46       | Precast Block Revetment Mat  | Jan. 1, 2003     |                |
| 419              | 47       | Precast Concrete   | July 1, 1999     | Jan. 1, 2002   |
| 80084            | 48       | Preformed Recycled Rubber Joint Filler   | Nov. 1, 2002     |                |

| <u>File Name</u> | <u>#</u> |  | <u>Special Provision Title</u>   | <u>Effective</u> | <u>Revised</u> |
|------------------|----------|--|--|------------------|----------------|
| 80015            | 49       |  | Public Convenience and Safety  | Jan. 1, 2000     |                |
| 3426I            | 50       |  | Railroad Protective Liability Insurance                                      | Dec. 1, 1986     | May 1, 1988    |
| * 80105          | 51       |  | Raised Reflective Pavement Markers (Bridge)                                  | Aug. 1, 2003     |                |
| 80011            | 52       |  | RAP for Use in Bituminous Concrete Mixtures                                  | Jan. 1, 2000     | April 1, 2002  |
| 80032            | 53       |  | Remove and Re-Erect Steel Plate Beam Guardrail and Traffic Barrier Terminals | Jan. 1, 2001     |                |
| 80038            | 54       |  | Sand Module Impact Attenuators   | Oct. 15, 1976    | April 1, 2002  |
| 80085            | 55       |  | Sealing Abandoned Water Wells  | Nov. 1, 2002     |                |
| 80074            | 56       |  | Shoulder Inlets with Curb  | Aug. 1, 2002     |                |
| 80096            | 57       |  | Shoulder Rumble Strips   | Jan. 1, 2003     |                |
| 80070            | 58       |  | Stabilized Subbase and Bituminous Shoulders Superpave                        | April 1, 2002    | Jan. 1, 2003   |
| 80086            | 59       |  | Subgrade Preparation   | Nov. 1, 2002     |                |
| 80010            | 60       |  | Superpave Bituminous Concrete Mixtures                                       | Jan. 1, 2000     | Jan. 1, 2003   |
| 80039            | 61       |  | Superpave Bituminous Concrete Mixtures (Low ESAL)                            | Jan. 1, 2001     | Jan. 1, 2003   |
| * 80075          | 62       |  | Surface Testing of Pavements   | April 1, 2002    | Aug. 1, 2003   |
| 80092            | 63       |  | Temporary Concrete Barrier   | Oct. 1, 2002     | Jan. 1, 2003   |
| 80087            | 64       |  | Temporary Erosion Control  | Nov. 1, 2002     |                |
| 80008            | 65       |  | Temporary Module Glare Screen System   | Jan. 1, 2000     |                |
| * 80106          | 66       |  | Temporary Portable Bridge Traffic Signals                                    | Aug. 1, 2003     |                |
| 80098            | 67       |  | Traffic Barrier Terminals  | Jan. 1, 2003     |                |
| 5729I            | 68       |  | Traffic Control Deficiency Deduction   | April 1, 1992    | Jan. 1, 2003   |
| 80088            | 69       |  | Traffic Structures   | Nov. 1, 2002     |                |
| 20338            | 70       |  | Training Special Provisions  | Oct. 15, 1975    |                |
| * 80107          | 71       |  | Transient Voltage Surge Suppression  | Aug. 1, 2003     |                |
| 80091            | 72       |  | Underdrain Operations  | Nov. 1, 2002     |                |
| 80089            | 73       |  | Vertical Barricades  | Nov. 1, 2002     | Jan. 1, 2003   |
| 80048            | 74       |  | Weight Control Deficiency Deduction  | April 1, 2001    | Aug. 1, 2002   |
| 80090            | 75       |  | Work Zone Public Information Signs   | Sept. 1, 2002    |                |
| 80097            | 76       |  | Work Zone Traffic Control Devices  | Jan. 1, 2003     | April 1, 2003  |
| 80071            | 77       |  | Working Days   | Jan. 1, 2002     |                |

The following special provisions have been **deleted** from use:

420 Bituminous Concrete Class I, Type 3CL (Low ESAL) (Eff. July 1, 1999)  
80027 Type III Barricades (Eff. Nov. 1, 2000)  
80014 Illinois First Signing (Eff. Oct. 1, 1999)

The following special provisions are in the 2003 Supplemental Specifications and Recurring Special Provisions:

| <u>File Name</u> | <u>Special Provision Title</u>                                   | <u>New Location</u>  | <u>Effective</u> | <u>Revised</u> |
|------------------|--|----------------------|------------------|----------------|
| 80024            | Coarse Aggregate for Bituminous Courses                          | Section 1004         | Nov. 1, 2000     | Jan. 1, 2001   |
| 80053            | Concrete Mix Design Criteria                                     | Sections 1020 & 1021 | Aug. 1, 2001     |                |
| 80060            | Errata for the 2002 Standard Specifications                      | Supplemental         | Jan. 1, 2002     | Jan. 1, 2003   |
| 80026            | Fine Aggregate for Portland Cement Concrete and Mortar           | Section 1003         | Nov. 1, 2000     | April 1, 2001  |
| 80033            | Fly Ash In Portland Cement Concrete                              | Section 1020         | Jan. 1, 2001     | April 1, 2001  |
| 80047            | Gradation for Fine and Coarse Aggregates                         | Sections 1003 & 1004 | April 1, 2001    | Jan. 1, 2002   |
| 80034            | Ground Granulated Blast-Furnace Slag in Portland Cement Concrete | Section 1020         | April 1, 1995    | Jan. 1, 2002   |
| 53312            | Mobilization   | Section 671          | Jan. 1, 1999     | Nov. 1, 2000   |
| 80061            | Nonshrink Grout  | Section 1024         | Jan. 1, 2002     |                |
| 80046            | Pavement Patching (Class C or Class D)                           | Section 442          | April 1, 2001    |                |
| 80019            | QC of Concrete Mixtures at the Plant - Double A                  | Check Sheet #38      | Aug. 1, 2000     | Nov. 1, 2001   |
| 80018            | QC of Concrete Mixtures at the Plant - Single A                  | Check Sheet #37      | Aug. 1, 2000     | Nov. 1, 2001   |
| 21984            | QC/QA of Bituminous Concrete Mixtures                            | Check Sheet #15      | July 1, 1996     | Jan. 1, 2002   |
| 21985            | QC/QA of Concrete Mixtures                                       | Check Sheet #39      | April 1, 1992    | Jan. 1, 2002   |
| 80063            | Removal and Disposal of Regulated Substances                     | Section 669          | Jan. 1, 2002     |                |

|       |   |                 |               |              |
|-------|---|-----------------|---------------|--------------|
| 80064 | Removal and Replacement of Preformed Elastomeric Compression Joint Seal | Section 449     | Jan. 1, 2002  |              |
| 42795 | Segregation Control of Bituminous Concrete                              | Check Sheet #42 | July 15, 1997 |              |
| 41209 | Traffic Barrier Terminal Type 1, Special                                | Check Sheet #40 | Aug. 1, 1994  | Jan. 1, 2002 |
| 80040 | Traffic Barrier Terminal Type 3, Special                                | Check Sheet #41 | Aug. 1, 1994  | Jan. 1, 2002 |

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Working Days
- Training Special Provisions

**TRAINING SPECIAL PROVISIONS (BDE)** This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

All District Engineers, Walter S. Kos and Miguel d'Escoto

Michael L. Hine

Special Provision for Pavement Removal

July 27, 2001

This special provision was developed by the Bureau of Design and Environment and industry. It allows for adjustment in the quantity of pavement removal when the actual thickness varies from the thickness shown on the plans. It has been revised to specify the method of adjustment, make the Department responsible for showing pavement thickness in the plans and state that adjustments will not be made for variations in the amount of reinforcement.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 9, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on July 27, 2001.

21982m

## PAVEMENT REMOVAL (BDE)

Effective: January 1, 1999

Revised: November 1, 2001

Revise the second paragraph of Article 440.02 of the Standard Specifications to read:

“The thickness of the existing pavement structure to be removed, including overlays and other appurtenances, will be shown on the plans.”

Add the following to Article 440.07 of the Standard Specifications:

- “(c) Adjustment of Quantities. Pavement removal will be adjusted if the thickness varies more than 15 percent from that shown on the plans. The quantity will be either increased or decreased according to the following chart.

| <u>% change of thickness</u> | <u>% change of quantity</u> |
|------------------------------|-----------------------------|
| 0 to less than 15            | 0                           |
| 15 to less than 20           | 10                          |
| 20 to less than 30           | 15                          |
| 30 and greater               | 20                          |

When an adjustment is made for variations in pavement thickness a resulting adjustment will also be made in the earthwork quantities when applicable.

No adjustment will be made for variations in the amount of reinforcement.”



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Epoxy Coating on Reinforcement

September 27, 2002

This special provision was developed to eliminate epoxy coatings on pavement reinforcement bars and thus reduce construction costs. It is being removed from the Recurring Special Provisions for 2003 and re-issued as BDE Special Provision to take advantage of the hierarchy of contract documents and to require epoxy coatings for bridge approach pavement and related appurtenances.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

31578m

## **EPOXY COATING ON REINFORCEMENT (BDE)**

Effective: April 1, 1997

Revised: January 1, 2003

For work outside the limits of bridge approach pavement, all references to epoxy coating in the Highway Standards and Standard Specifications for reinforcement, tie bars and chair supports will not apply for pavement, shoulders, curb, gutter, combination curb and gutter and median.

31578

## RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

The contractor will be required to carry Railroad Protective Liability and Property Damage Liability Insurance in accordance with Article 107.11 of the Standard Specifications. The limits of liability shall be in accordance with Article 107.11 of the Standard Specifications unless otherwise noted. A separate policy is required for each railroad indicated below unless otherwise noted.

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| <u>NAMED INSURED &amp; ADDRESS</u> | <u>NUMBER &amp; SPEED OF<br/>PASSENGER TRAINS</u> | <u>NUMBER &amp; SPEED OF<br/>FREIGHT TRAINS</u> |
|------------------------------------|---|---|
|------------------------------------|---|---|

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FOR FREIGHT/PASSENGER INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_  
FOR INSURANCE INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_

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FOR FREIGHT/PASSENGER INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_  
FOR INSURANCE INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_

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FOR FREIGHT/PASSENGER INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_  
FOR INSURANCE INFORMATION CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_

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Basis of Payment: The costs for providing insurance, as noted above, will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

APPROVAL OF INSURANCE: The ORIGINAL and one CERTIFIED copy of each required policy shall be submitted to ENGINEER OF DESIGN, ILLINOIS DEPARTMENT OF TRANSPORTATION, 2300 SOUTH DIRKSEN PARKWAY, SPRINGFIELD, ILLINOIS 62764 for approval. The contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Resident Engineer evidence that the required railroad protective liability insurance has been approved by the railroad(s). The Contractor shall also provide the Resident Engineer with expiration date of each required policy.

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Precast Concrete

September 28, 2001

This special provision has been revised by the Bureau of Materials and Physical Research to clarify the products covered by the Department's Policy Memorandum, "Quality Control/Quality Assurance Program for Precast Concrete Products".

This special provision should be included in all contracts using precast concrete products.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 18, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on September 28, 2001.

419m

## PRECAST CONCRETE (BDE)

Effective: July 1, 1999

Revised: January 1, 2002

Description. This special provision identifies non-prestressed, precast concrete products which shall be produced according to the Department's current, "Quality Control/Quality Assurance Program for Precast Concrete Products".

Products. The list of products is as follows:

| Product Class      | Precast Item  |
|--------------------|---|
| Box Culvert        | Precast Concrete Box Culverts   |
| Pipe               | Reinforced Concrete Culvert, Storm Drain and Sewer Pipe   |
|                    | Concrete Sewer, Storm Drain and Culvert Pipe  |
|                    | Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe  |
|                    | Concrete Drain Tile   |
|                    | Reinforced Concrete Arch Culvert, Storm Drain and Sewer Pipe  |
|                    | Concrete Headwall for Pipe Drains   |
|                    | Precast Reinforced Concrete Flared End Sections and Elliptical Flared End Sections  |
|                    | Precast Reinforced Concrete Pipe Elbows, Tees and Collars   |
| Structure          | Precast Concrete Members  |
| Block/Brick        | Erosion Control: Concrete Block Riprap, Block Revetment Mat, and Articulated Block Mat  |
|                    | Concrete Building Brick   |
|                    | Concrete Masonry Units  |
| Drainage Structure | Precast Reinforced Concrete Catch Basins, Manholes, Inlets, Miscellaneous Structures, Valve Vaults and Flat Slab Tops/Bottoms |
| Barrier            | Concrete Barrier  |
|                    | Temporary Concrete Barrier  |
| Miscellaneous      | Right of Way, Drainage, Section and Permanent Survey Markers, Bumper Blocks, Junction Boxes, and Handholes                    |

For precast concrete products which are constructed according to AASHTO M 86, M 170, M 178, M 199, M 206, M 207, M 259, or M 273; portland or blended hydraulic cement shall be according to Article 1001.01 of the Standard Specifications, except the pozzolan constituent in the Type IP or Type I(PM) cement shall be fly ash. In addition, the minimum or maximum combination of a portland cement and a cementitious material shall be according to the AASHTO M specification. The cementitious material shall be according to Articles 1010.01, 1010.03, 1014.01, 1014.02, 1015.01, 1015.02, 1016.01 and 1016.02.

Acceptance. Products which have been lot or piece inspected and approved by the Department prior to July 1, 1999, will be accepted for use on this contract. Products produced on or after July 1, 1999, will be accepted only if produced according to the Department's current "Quality Control/Quality Assurance Program for Precast Concrete Products".

All District Engineers, Robert R. Strand & Thomas R. Walker

William T. Sunley

Special Provision for Driving Guardrail Posts

January 12, 1998

This special provision was developed by the Bureau of Design and Environment. This Special Provision gives the Contractor the option to drive steel posts through bituminous shoulders when the foreslopes are 1:3 or flatter. If the foreslopes are steeper than 1:3 or if the designer anticipates slope stability problems at the location of the guardrail, this Special Provision should not be included in the plans. The designer should designate on the plans which locations allow driving guardrail posts.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the April 24, 1998 and for subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the WANG Office system to the district offices on January 15, 1998.

**Driving Guardrail Posts (BDE)**

Effective: April 1, 1998

Add the following to the end of Article 630.06 of the Standard Specifications:

“When steel posts are used and the foreslopes are 1:3 or flatter, the Contractor may drive the posts with a vibratory hammer through the bituminous stabilization provided the posts are protected by a suitable driving cap. If disturbance and or damage of the shoulder or slope occurs, the driving shall be discontinued and the posts shall be driven through holes cored in the shoulder.”

43761

All District Engineers, Walter S. Kos and Miguel d'Escoto

Michael L. Hine

Special Provision for Building Removal - Case I (Non-Friable and Friable Asbestos)

April 20, 2001

This special provision has been revised to remove the U.S. Environmental Protection Agency from the list of agencies that receive a copy of the "Demolition/Renovation Notice". Minor corrections and clarifications have been made as well. It should be included on contracts involving building removal with both non-friable and friable asbestos abatement.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 3, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail system to the district offices on April 20, 2001.

5026im



## **BUILDING REMOVAL - CASE I (Non-Friable and Friable Asbestos Abatement) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of \_\_\_\_\_ building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| <u>Bldg. No.</u> | <u>Parcel<br/>No.</u> | <u>Location</u> | <u>Description</u> |
|------------------|-----------------------|-----------------|--------------------|
|------------------|-----------------------|-----------------|--------------------|

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)", "Removal and Disposal of Friable Asbestos Building No. \_\_\_\_\_", and "Removal and Disposal of Non-Friable Asbestos Building No. \_\_\_\_\_" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all asbestos, friable and non-friable, is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Three separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO.
2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO.
3. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO.

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable and non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provisions for "Removal and Disposal of Friable Asbestos, Building No. \_\_\_\_\_" and "Removal and Disposal of Non-Friable Asbestos, Building No. \_\_\_\_\_", and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages \_\_\_\_\_ thru \_\_\_\_\_. Also refer to the Materials Description Table on page \_\_\_\_\_ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page \_\_\_\_\_. This table states whether the ACM is friable or non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos, and non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page \_\_\_\_\_, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  - 1. Submittals required under Asbestos Abatement Experience.
  - 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  - 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).
6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
8. Submit proof of written notification and compliance with Paragraph "Notifications."

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:

a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.

2. For workers involved in the removal of friable and non-friable asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Interior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable Transite and floor tile removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

D. Exterior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

E. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".

2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_: This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown, which price shall include furnishing all labor, materials, equipment and services required to remove and dispose of the friable asbestos.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.
2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all asbestos, friable and non-friable is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. \_\_\_\_\_".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. \_\_\_\_\_ be deleted.

## EXAMPLE

Attached are Appendixes A - D. These appendixes are examples of the information to be included in the proposal and referred to on page 3 of the Special Provision.

Appendix A are the sketches of the building(s) noted on page 1 of the Special Provision. These sketches show the location of asbestos on each floor of the building(s).

Appendix B provides a "Material Description Table" also referred to on page 3 of the Special Provision.

Appendix C is a "Material Quantities Table" and is referred to on page 3 of the Special Provision.

Appendix D is a sample of a Shipping Manifest form referred to on page 3.

Appendix E is a sample of the building(s) identification needed on page 1.



## APPENDIX B

### MATERIAL DESCRIPTION TABLE

| Material Description                    | % And Type Of Asbestos | Location, Description, Sample Number (If Applicable)  |
|---|------------------------|---|
| <b>I. <u>Ike and Swanies Tap</u></b>    |                        |   |
| Pipe Insulation                         | 55% & 60% chrysotile   | Typical of all insulated piping in Basement area and in wall on 1st Floor. Fair condition. Some debris present in Basement.                                     |
| Freezer cork Mastic                     | 10% chrysotile         | Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Sample AX656.   |
| Floor tile                              | 10% chrysotile         | First floor in west portion of building. Floor tile is located under carpet. Poor condition. Sample AX652.  |
| <b>II. <u>Peoria Hotel Building</u></b> |                        |   |
| Pipe Insulation                         | 20% & 30% chrysotile   | Typical of most insulated piping in Basement area. 1st Floor and 2nd Floor. Fair condition. Abundant debris present in Basement. Sample AX660 and Sample AX663. |
| HW Tank Insulation                      | 55% chrysotile         | Tank located in Mechanical Room on the Basement Floor. Tank insulation is in fair condition. ACM debris is throughout Mechanical Room. Sample AX664.            |
| Freezer Cork Mastic                     | 10% chrysotile         | Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Same as Sample AX656.   |

|                    |                                  |   |
|--------------------|----------------------------------|---|
| Floor tile         | 10% chrysotile<br>12% chrysotile | First floor in the main hotel building.<br>Floor tile is in poor condition. Sample AX561 and Sample AX662.          |
| Transite<br>Siding | 25% chrysotile                   | Located on an out building in back of main hotel, 1st Floor. Debris on ground and in Basement area<br>Sample AX666. |

## APPENDIX C

### MATERIAL QUANTITIES TABLE

The following are approximate quantities of ACM to be removed from the building indicated. These material quantities do not indicate the cleaning required to remove asbestos debris and resulting contamination from the work areas.

#### I. Ike and Swanies Tap

| <u>Material</u> | <u>Floor</u> | <u>Quantity Present</u> | <u>Friable</u> |
|-----------------|--------------|-------------------------|----------------|
| Pipe Insulation | Basement     | 140 L.F.                | Yes            |
| Pipe Insulation | 1st Floor    | 20 L.F.                 | Yes            |
| Cork Mastic     | Basement     | 900 S.F.                | No             |
| Floor Tile      | 1st Floor    | 1225 S.F.               | No             |
| Carpet          | 1st Floor    | 1225 S.F.               | No             |

#### II. Peoria Hotel Building

| <u>Material</u> | <u>Floor</u>         | <u>Quantity Present</u> | <u>Friable</u> |
|-----------------|----------------------|-------------------------|----------------|
| Tank Insulation | Basement Mech RM     | 115 L.F.                | Yes            |
| Pipe Insulation | Basement Mech RM     | 335 L.F.                | Yes            |
| Pipe Insulation | Basement (remaining) | 770 L.F.                | Yes            |
| Pipe Insulation | 1st Floor            | 120 S.F.                | Yes            |
| Pipe Insulation | 2nd Floor            | 40 S.F.                 | Yes            |
| Cork Mastic     | Basement             | 400 S.F.                | No             |
| Floor Tile      | 1st Floor            | 1300 S.F.               | No             |
| Linoleum        | 1st Floor            | 75 S.F.                 | No             |
| Transite Siding | 1st Floor            | 225 S.F.                | No             |

APPENDIX D  
SHIPPING MANIFEST  
Generator

|  |                |                         |
|--|----------------|-------------------------|
| 1. Work Site Name and Mailing Address  | Owner's Name   | Owner's Telephone No.   |
| 2. Operator's Name and Address   |                | Operator's Telephone No |
| 3. Waste Disposal Site (WDS) Name<br>Mailing Address, and Physical Site Location   |                | WDS Telephone No.       |
| 4. Name and Address of Responsible Agency  |                |                         |
| 5. Description of Materials  |                |                         |
| 6. Containers  | No.            | Type                    |
| 7. Total Quantity  | M <sup>3</sup> | (Yd <sup>3</sup> )      |
| 8. Special Handling Instructions and Additional Information  |                |                         |
| 9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. |                |                         |
| Printed/Typed Name & Title   | Signature      | Month Day Year          |

Transporter

|   |           |                |
|---|-----------|----------------|
| 10. Transporter 1 (Acknowledgement of Receipt of Materials) |           |                |
| Printed/Typed Name & Title                                  | Signature | Month Day Year |
| Address and Telephone No.                                   |           |                |
| 11. Transporter 2 (Acknowledgement of Receipt of Materials) |           |                |
| Printed/Typed Name & Title                                  | Signature | Month Day Year |
| Address and Telephone No.                                   |           |                |

Disposal Site

|   |           |                |
|---|-----------|----------------|
| 12. Discrepancy Indication Space  |           |                |
| 13. Waste Disposal Site Owner or Operator: Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12 |           |                |
| Printed/Typed Name & Title  | Signature | Month Day Year |

## APPENDIX D

### INSTRUCTIONS

#### Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
  - Friable asbestos material
  - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
  - DM - Metal drums, barrels
  - DP - Plastic drums, barrels
  - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.

## APPENDIX D

### INSTRUCTIONS

#### Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

#### Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.

APPENDIX E

| Bldg. No. | Parcel No. | Location                       | Description  |
|-----------|------------|--------------------------------|--|
| 1         | 408D005    | 210-212<br>Franklin,<br>Peoria | 2 story 60'x40' brick<br>& masonry, 50% basement<br>50% crawl space  |
| 2         | 408D010    | 203-211<br>Franklin,<br>Peoria | Section 1: 1 story<br>30'x17'-4" brick &<br>masonry slab<br><br>Section 2: 2 story<br>36'x81' brick & masonry<br>full basement<br><br>Section 3: 3 story<br>50'x72' brick & masonry<br>full basement<br><br>Section 4: 2 story<br>134'x38' brick &<br>masonry, partial<br>basement |



All District Engineers, Walter S. Kos and Miguel d'Escoto

Michael L. Hine

Special Provision for Building Removal - Case II (Non-Friable Asbestos)

April 20, 2001

This special provision has been revised to remove the U.S. Environmental Protection Agency from the list of agencies that receive a copy of the "Demolition/Renovation Notice". Minor corrections and clarifications have been made as well. It should be included on contracts involving building removal with non-friable asbestos abatement only.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 3, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail system to the district offices on April 20, 2001.

5048im

## **BUILDING REMOVAL - CASE II (NON-FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of \_\_\_\_\_ building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| <u>Bldg. No.</u> | <u>Parcel<br/>No.</u> | <u>Location</u> | <u>Description</u> |
|------------------|-----------------------|-----------------|--------------------|
|------------------|-----------------------|-----------------|--------------------|

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)" and "Removal and Disposal of Non-Friable Asbestos Building No. \_\_\_\_" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all non-friable asbestos is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Two separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. \_\_\_\_\_
2. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provision for "Removal and Disposal of Non-Friable Asbestos, Building No. \_\_\_\_\_," and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages \_\_\_\_ thru \_\_\_\_\_. Also refer to the Materials Description Table on page \_\_\_\_ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page \_\_\_\_\_. This table states the ACM is non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page \_\_\_\_\_, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of the permit(s) shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217) 785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  - 1. Submittals required under Asbestos Abatement Experience.
  - 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  - 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.
  - 4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
  - 5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials,

supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).

6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
8. Submit proof of written notification and compliance with the "Notifications" paragraph.

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

- A. Company Experience. Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that

he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:
  - a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.
  - b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.
2. For workers involved in the removal of asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

- A. Personal Monitoring. All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the contractor. Additional personal samples may be required by the Engineer at any time during the project.
- B. Interior Non-Friable Asbestos-Containing Materials. The contractor shall perform personal air monitoring during removal of all non-friable Transite and floor tile removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.
- C. Exterior Non-Friable Asbestos-Containing Materials. The contractor shall perform personal air monitoring during removal of all non-friable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

#### D. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".
2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.
2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all non-friable asbestos is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. \_".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. \_\_\_\_\_ be deleted.

5048I



All District Engineers, Walter S. Kos and Miguel d'Escoto

Michael L. Hine

Special Provision for Building Removal - Case III (Friable Asbestos)

April 20, 2001

This special provision has been revised to remove the U.S. Environmental Protection Agency from the list of agencies that receive a copy of the "Demolition/Renovation Notice". Minor corrections and clarifications have been made as well. It should be included on contracts involving building removal with friable asbestos abatement only.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 3, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail system to the district offices on April 20, 2001.

5049im

## **BUILDING REMOVAL - CASE III (FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL**: This item shall consist of the removal and disposal of \_\_\_\_\_ building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| <u>Bldg. No.</u> | <u>Parcel<br/>No.</u> | <u>Location</u> | <u>Description</u> |
|------------------|-----------------------|-----------------|--------------------|
|------------------|-----------------------|-----------------|--------------------|

**Discontinuance of Utilities**: The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs**: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)" and "Removal and Disposal of Friable Asbestos Building No. \_\_\_\_" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all friable asbestos has been removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Two separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO.
2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provision for "Removal and Disposal of Friable Asbestos, Building No. \_\_\_\_" and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages \_\_\_\_ thru \_\_\_\_\_. Also refer to the Materials Description Table on page \_\_\_\_ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page \_\_\_\_\_. This table states the ACM is friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page \_\_\_\_\_, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  - 1. Submittals required under Asbestos Abatement Experience.
  - 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  - 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.
  - 4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
  - 5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).
  - 6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
  - 7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of

decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.

8. Submit proof of written notification and compliance with the "Notifications" paragraph.

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

- A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:
  - a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by

the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

- b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.
2. For workers involved in the removal of asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

**ABATEMENT AIR MONITORING:** The Contractor shall comply with the following:

- A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits will be monitored daily. Personal monitoring is the responsibility of the contractor. Additional personal samples may be required by the Engineer at any time during the project.
- B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.
- C. Air Monitoring Professional
  1. All air sampling will be conducted by a qualified Air Sampling Professional supplied by the contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".
  2. Air sampling will be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_ : This

work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown.

5049I

All District Engineers, Walter S. Kos and Miguel d'Escoto

Michael L. Hine

Special Provision for Building Removal - Case IV (No Asbestos)

April 20, 2001

This special provision has been revised to remove the U.S. Environmental Protection Agency from the list of agencies that receive a copy of the "Demolition/Renovation Notice". Minor corrections and clarifications have been made as well. It should be included on contracts involving building removal with no asbestos abatement whatsoever.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 3, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail system to the district offices on April 20, 2001.

5053im



## **BUILDING REMOVAL - CASE IV (NO ASBESTOS) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of \_\_\_\_\_ building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| <u>Bldg. No.</u> | <u>Parcel<br/>No.</u> | <u>Location</u> | <u>Description</u> |
|------------------|-----------------------|-----------------|--------------------|
|------------------|-----------------------|-----------------|--------------------|

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

**Basis of Payment:** This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein.

The lump sum unit price(s) for this work shall represent the cost of demolition. Any salvage value shall be reflected in the contract unit price for this item.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any demolition activity.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Prior to starting work, the Contractor shall submit proof of written notification and compliance with the "Notifications" paragraph.

All District Engineers, Walter S. Kos, and Thomas R. Walker

Michael L. Hine

Special Provision for Pavement Thickness Determination for Payment

May 1, 2000

This special provision was developed by the Bureau of Construction, the Bureau of Design and Environment and industry to ascertain pavement thickness for determination of payment for full depth bituminous concrete and all pcc pavements. Revisions to this special provision were made in order to correspond with checksheet 17 of the Supplemental Specifications and Recurring Special Provisions adopted January 1, 2000. This special provision is to be used on all project including and over 500 square meters of contiguous pavement

This special provision will be inserted as needed in the August 4, 2000 letting by the Office of Project Development and Implementation and the districts should include the BDE Check Sheet with the applicable BDE Special Provisions for subsequent lettings and the Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through Microsoft Exchange to the district offices on May 1, 2000.

## **Pavement Thickness Determination for Payment (BDE)**

Effective: April 1, 1999

Revised: August 1, 2000

Description. This work shall consist of determining pavement thickness for payment for full depth bituminous concrete and all pcc pavements.

Materials. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials For Concrete Repairs. Coarse aggregate may be added to the mortar if allowed by the manufacturer's instructions on the package. Mixing shall be according to the manufacture's recommendations.

Equipment. Cores shall be taken utilizing an approved coring machine. The cores shall have a diameter of 50 mm (2 inches). The cores shall be measured utilizing an approved measuring device.

### **CONSTRUCTION REQUIREMENTS**

Tolerance in Thickness. Determination of the pavement thickness shall be performed after the pavement surface tests and all corrective grinding are complete according to Article 407.09 of the Standard Specifications. Adjustments made in the contract unit price for pavement thickness will be in addition to and independent of those made for the Profile Index.

The pavement will be divided into lots of not more than 1500 m (5000 ft.) in length. When the length of a continuous strip of pavement is less than 1500 m (5000 ft.), these short lengths of pavement, ramps, turn lanes, and other short sections of continuous pavement shall be grouped together to form lots of approximately 5500 square meters (6500 sq. yds.). Short segments between structures will be measured continuously with the structure segments omitted. Each lot will be subdivided into 10 equal sublots. The width of a subplot and lot will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.

Fifty millimeter (two inch) cores shall be taken from the pavement by the Contractor at random locations selected by the Engineer. When computing the thickness of a lot, 1 core will be taken per subplot. Core locations will be specified by the Engineer prior to beginning the coring operations.

The Contractor and the Engineer shall witness the coring operations, the measurement, and recording of the cores. Core measurements will be determined immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples may be discarded.

Patching Holes. Upon completion of coring, all core holes shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent pavement.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set

concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer's instructions or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer's instructions.

Deficient Core. When the thickness of the core in a subplot is deficient by more than 10% of plan thickness, the Contractor will have the option of taking 3 additional cores selected at random by the Engineer within the same subplot at the Contractor's expense. The thickness of the additional 3 cores will be averaged with the original core thickness. When the average thickness shows the subplot to be deficient by 10% or less, no additional action is necessary. If the Contractor chooses not to take additional cores, the pavement in the subplot shall be removed and replaced at the Contractor's expense. When additional cores are taken and the average thickness of the additional cores show the subplot to be deficient by more than 10%, the pavement in that subplot shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. For Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material thickness(es), areas to be overlaid, and method of placement used for additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement will be retested for thickness at the Contractor's expense. When the thin pavement is left in place and no additional lift(s) are placed, no payment will be made for the deficient pavement subplot. The thickness of the original core taken in the subplot will be used in determining the payment for the entire lot and no adjustment to the pay factor will be made for any corrective action taken.

Deficient Lot. After analyzing the cores, the Percent Within Limits will be calculated. A lot of pavement represented by the Percent Within Limits (PWL) of 60% or less, shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such pavement to remain in place. For Bituminous Concrete Pavement (Full Depth), allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement used for the additional lift(s) will be approved by the Engineer. After either corrective action, the Contractor shall core the lot according to the "Coring Procedures" at no additional cost to the Department. The PWL will then be recalculated for the lot, however, the pay factor for the lot will be a maximum of 100%. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing, the lot to remain in place. When the lot is left in place and no additional lifts are placed the pay factor for the lot will be based on the calculated PWL.

Right of Discovery. When the Engineer has reason to believe the random core selection process will not accurately represent the true conditions of the work, he/she may order cores in addition to those specified. The additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action. These additional cores and locations will be determined prior to commencement of coring operations. When the additional cores show the pavement to be deficient by more than 10%, additional cores shall be taken at locations determined by the Engineer to determine the limits of the deficient pavement area. The deficient pavement area will be defined as the area between two acceptable cores. An acceptable core is a core with a thickness of 90% or more of plan thickness. The defined pavement area shall be removed and

replaced at the Contractor's expense. When requested by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. On Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed to bring the deficient pavement to plan thickness when the Engineer determines that grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement for the additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement will be retested for thickness at the Contractor's expense. When the thin pavement is left in place and no additional lift(s) are placed, no payment will be made for the deficient pavement. When the additional cores show the pavement to be deficient by 10% or less the additional cores will be paid for according to Article 109.04. When the additional cores show the pavement to be deficient by more than 10% the additional cores taken in the deficient area shall be at the Contractor's expense.

Profile Index Adjustment. After any section of pavement is removed and replaced or any additional lifts are added, the corrected areas shall be tested for pavement smoothness and any necessary Profile Index adjustments and/or corrections will be made based on these final profile readings. Such surface testing shall be performed at the Contractor's expense.

Core Analysis. Cores will be analyzed according to the following:

(a) Definition:

$x_i$  = Individual values (core lengths) under consideration  
 $n$  = Number of individual values under consideration  
 (10 per lot)

$\bar{x}$  = Average of the values under consideration  
 $LSL$  = Lower Specification Limit ( $LSL = 0.98$  plan thickness for pavement)  
 $Q_L$  = Lower Quality Index  
 $S$  = Sample Standard Deviation  
 $PWL$  = Percent Within Limits  
 $\Sigma$  =  $(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots + (x_{10} - \bar{x})^2$

Determine  $\bar{x}$  for the lot to the nearest two decimal places.

Compute the sample standard deviation to the nearest three decimal places using:

$$S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

Determine the Lower Quality Index to the nearest two decimal places using:

$$Q_L = \frac{(\bar{x} - LSL)}{S}$$

Determine the percentage that will fall above the Lower Specification Limit (LSL) by going to the attached Table and utilizing calculated  $Q_L$ . Read the appropriate PWL value from the Table. For  $Q_L$  values less than zero the value shown in the table must be subtracted from 100 to obtain PWL.

Pay Adjustment. The following pay adjustment equation will be used to determine (to the nearest two decimal places) the pay factor for each lot.

$$\text{Pay Factor (\%)} = 55 + 0.5 (\text{PWL})$$

—  
If  $\bar{x}$  for a lot is less than the plan thickness, the maximum pay factor for that lot will be 100%.

Total Payment. The payment will be based on the appropriate pay items in Sections 407, 420, and 421. The final payment will be adjusted according to the following equation:

$$\text{Total Payment} = \text{PF}[\text{CUP} (\text{SQMPAVT} - \text{DEFPAVT})]$$

PF = Total Pay Factor

CUP = Contract Unit Price

SQMPAVT = Square Meters of Pavement Placed

DEFPAVT = Square Meters of Deficient Pavement

The total pay factor for the entire pavement will be the average of all the lots, however, not more than 102% of plan quantity will be paid.

All work involved in determining the total payment will be included in the contract unit prices of the pay items involved.

53600

**Percent Within Limits**

| Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) | Quality Index (Q)* | Percent in Limits (PWL) |
|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| 0.00               | 50.00                   | .040               | 65.07                   | 0.80               | 78.43                   | 1.20               | 88.76                   | 1.60               | 95.46                   | 2.00               | 98.83                   | 2.40               | 99.89                   |
| 0.01               | 50.38                   | 0.41               | 65.43                   | 0.81               | 78.72                   | 1.21               | 88.97                   | 1.61               | 95.58                   | 2.01               | 98.88                   | 2.41               | 99.90                   |
| 0.02               | 50.77                   | 0.42               | 65.79                   | 0.82               | 79.02                   | 1.22               | 89.17                   | 1.62               | 95.70                   | 2.02               | 98.92                   | 2.42               | 99.91                   |
| 0.03               | 51.15                   | 0.43               | 66.15                   | 0.83               | 79.31                   | 1.23               | 89.38                   | 1.63               | 95.81                   | 2.03               | 98.97                   | 2.43               | 99.91                   |
| 0.04               | 51.54                   | 0.44               | 66.51                   | 0.84               | 79.61                   | 1.24               | 89.58                   | 1.64               | 95.93                   | 2.04               | 99.01                   | 2.44               | 99.92                   |
| 0.05               | 51.92                   | 0.45               | 66.87                   | 0.85               | 79.90                   | 1.25               | 89.79                   | 1.65               | 96.05                   | 2.05               | 99.06                   | 2.45               | 99.93                   |
| 0.06               | 52.30                   | 0.46               | 67.22                   | 0.86               | 80.19                   | 1.26               | 89.99                   | 1.66               | 96.16                   | 2.06               | 99.10                   | 2.46               | 99.94                   |
| 0.07               | 52.69                   | 0.47               | 67.57                   | 0.87               | 80.47                   | 1.27               | 90.19                   | 1.67               | 96.27                   | 2.07               | 99.14                   | 2.47               | 99.94                   |
| 0.08               | 53.07                   | 0.48               | 67.93                   | 0.88               | 80.76                   | 1.28               | 90.38                   | 1.68               | 96.37                   | 2.08               | 99.18                   | 2.48               | 99.95                   |
| 0.09               | 53.46                   | 0.49               | 68.28                   | 0.89               | 81.04                   | 1.29               | 90.58                   | 1.69               | 96.48                   | 2.09               | 99.22                   | 2.49               | 99.95                   |
| 0.10               | 53.84                   | 0.50               | 68.63                   | 0.90               | 81.33                   | 1.30               | 90.78                   | 1.70               | 96.59                   | 2.10               | 99.26                   | 2.50               | 99.96                   |
| 0.11               | 54.22                   | 0.51               | 68.98                   | 0.91               | 81.61                   | 1.31               | 90.96                   | 1.71               | 96.69                   | 2.11               | 99.29                   | 2.51               | 99.96                   |
| 0.12               | 54.60                   | 0.52               | 69.32                   | 0.92               | 81.88                   | 1.32               | 91.15                   | 1.72               | 96.78                   | 2.12               | 99.32                   | 2.52               | 99.97                   |
| 0.13               | 54.99                   | 0.53               | 69.67                   | 0.93               | 82.16                   | 1.33               | 91.33                   | 1.73               | 96.88                   | 2.13               | 99.36                   | 2.53               | 99.97                   |
| 0.14               | 55.37                   | 0.54               | 70.01                   | 0.94               | 82.43                   | 1.34               | 91.52                   | 1.74               | 96.97                   | 2.14               | 99.39                   | 2.54               | 99.98                   |
| 0.15               | 55.75                   | 0.55               | 70.36                   | 0.95               | 82.71                   | 1.35               | 91.70                   | 1.75               | 97.07                   | 2.15               | 99.42                   | 2.55               | 99.98                   |
| 0.16               | 56.13                   | 0.56               | 70.70                   | 0.96               | 82.97                   | 1.36               | 91.87                   | 1.76               | 97.16                   | 2.16               | 99.45                   | 2.56               | 99.98                   |
| 0.17               | 56.51                   | 0.57               | 71.04                   | 0.97               | 83.24                   | 1.37               | 92.04                   | 1.77               | 97.25                   | 2.17               | 99.48                   | 2.57               | 99.98                   |
| 0.18               | 56.89                   | 0.58               | 71.38                   | 0.98               | 83.50                   | 1.38               | 92.22                   | 1.78               | 97.33                   | 2.18               | 99.50                   | 2.58               | 99.99                   |
| 0.19               | 57.27                   | 0.59               | 71.72                   | 0.99               | 83.77                   | 1.39               | 92.39                   | 1.79               | 97.42                   | 2.19               | 99.53                   | 2.59               | 99.99                   |
| 0.20               | 57.65                   | 0.60               | 72.06                   | 1.00               | 84.03                   | 1.40               | 92.56                   | 1.80               | 97.51                   | 2.20               | 99.56                   | 2.60               | 99.99                   |
| 0.21               | 58.03                   | 0.61               | 72.39                   | 1.01               | 84.28                   | 1.41               | 92.72                   | 1.81               | 97.59                   | 2.21               | 99.58                   | 2.61               | 99.99                   |
| 0.22               | 58.40                   | 0.62               | 72.72                   | 1.02               | 84.53                   | 1.42               | 92.88                   | 1.82               | 97.67                   | 2.22               | 99.61                   | 2.62               | 99.99                   |
| 0.23               | 58.78                   | 0.63               | 73.06                   | 1.03               | 84.79                   | 1.43               | 93.05                   | 1.83               | 97.75                   | 2.23               | 99.63                   | 2.63               | 100.00                  |
| 0.24               | 59.15                   | 0.64               | 73.39                   | 1.04               | 85.04                   | 1.44               | 93.21                   | 1.84               | 97.83                   | 2.22               | 99.66                   | 2.64               | 100.00                  |
| 0.25               | 59.53                   | 0.65               | 73.72                   | 1.05               | 85.29                   | 1.45               | 93.37                   | 1.85               | 97.91                   | 2.25               | 99.68                   | ≥ 2.65             | 100.00                  |
| 0.26               | 59.90                   | 0.66               | 74.04                   | 1.06               | 85.53                   | 1.46               | 93.52                   | 1.86               | 97.98                   | 2.26               | 99.70                   |                    |                         |
| 0.27               | 60.28                   | 0.67               | 74.36                   | 1.07               | 85.77                   | 1.47               | 93.67                   | 1.87               | 98.05                   | 2.27               | 99.72                   |                    |                         |
| 0.28               | 60.65                   | 0.68               | 74.69                   | 1.08               | 86.02                   | 1.48               | 93.83                   | 1.88               | 98.11                   | 2.28               | 99.73                   |                    |                         |
| 0.29               | 61.03                   | 0.69               | 75.01                   | 1.09               | 86.26                   | 1.49               | 93.98                   | 1.89               | 98.18                   | 2.29               | 99.75                   |                    |                         |
| 0.30               | 61.40                   | 0.70               | 75.33                   | 1.10               | 86.50                   | 1.50               | 94.13                   | 1.90               | 98.25                   | 2.30               | 99.77                   |                    |                         |
| 0.31               | 61.77                   | 0.71               | 75.64                   | 1.11               | 86.73                   | 1.51               | 94.27                   | 1.91               | 98.31                   | 2.31               | 99.78                   |                    |                         |
| 0.32               | 62.14                   | 0.72               | 75.96                   | 1.12               | 86.96                   | 1.52               | 94.41                   | 1.92               | 98.37                   | 2.32               | 99.80                   |                    |                         |
| 0.33               | 62.51                   | 0.73               | 76.27                   | 1.13               | 87.20                   | 1.53               | 94.54                   | 1.93               | 98.44                   | 2.33               | 99.81                   |                    |                         |
| 0.34               | 62.88                   | 0.74               | 76.59                   | 1.14               | 87.43                   | 1.54               | 94.68                   | 1.94               | 98.50                   | 2.34               | 99.83                   |                    |                         |
| 0.35               | 63.25                   | 0.75               | 76.90                   | 1.15               | 87.66                   | 1.55               | 94.82                   | 1.95               | 98.56                   | 2.35               | 99.84                   |                    |                         |
| 0.36               | 63.61                   | 0.76               | 77.21                   | 1.16               | 87.88                   | 1.56               | 94.95                   | 1.96               | 98.61                   | 2.36               | 99.85                   |                    |                         |
| 0.37               | 63.98                   | 0.77               | 77.51                   | 1.17               | 88.10                   | 1.57               | 95.08                   | 1.97               | 98.67                   | 2.37               | 99.86                   |                    |                         |
| 0.38               | 64.34                   | 0.78               | 77.82                   | 1.18               | 88.32                   | 1.58               | 95.20                   | 1.98               | 98.72                   | 2.38               | 99.87                   |                    |                         |
| 0.39               | 64.71                   | 0.79               | 78.12                   | 1.19               | 88.54                   | 1.59               | 95.33                   | 1.99               | 98.78                   | 2.39               | 99.88                   |                    |                         |

\*For Q values less than zero, subtract the table value from 100 to obtain PWL



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Traffic Control Deficiency Deduction

September 27, 2002

This special provision was developed to ensure a prompt response to traffic control and protection deficiencies. It has been revised to further that effort and to ensure the traffic control stays in compliance. Work zone safety remains as one of the Department's primary goals.

It should be included in all projects involving traffic control and protection.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

5729lm

## **TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)**

Effective: April 1, 1992

Revised: January 1, 2003

To ensure a prompt response to incidents involving the integrity of work zone traffic control, the Contractor shall provide a telephone number where a responsible individual can be contacted 24 hours-a-day.

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

The deficiency may be any lack of repair, maintenance or non-compliance with the traffic control plan.

If the Contractor fails to correct the deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either \$1,000 or 0.05 percent of the awarded contract value, whichever is greater.

In addition, if the Contractor fails to respond, the Engineer may correct the deficiency and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities.

All District Engineers, Carl Kowalski & J. F. Boyle, Jr.

Gary Gould

\*Special Provisions

April 1, 1994

\*Aluminized Steel Pipe  
Asbestos Waterproofing Membrane or  
Asbestos Bituminous Concrete Surface Removal  
Failure to Complete Work on Time  
Heavy Duty Latex Modified Open-Graded Asphalt Friction Course  
Pavement Cracking and Sealing (Experimental)  
QC/QA of Class I Bituminous Mixtures  
Storm Sewer and Pipe Culverts

The subject Special Provisions have been revised to reflect the correct references in the 1994 Standard Specifications for Road and Bridge Construction book.

The Project Development and Implementation Section will include the subject Special Provisions in all applicable projects scheduled for the July 1, 1994 letting. Your office should include these Special Provisions in all applicable projects for subsequent lettings.

These Special Provisions will be telecommunicated to the district offices on April 4, 1994.

**Asbestos Waterproofing Membrane and Asbestos Bituminous Concrete Surface Removal (BDE)**

Effective June 1, 1989  
Revised June 30, 1994

This item shall consist of furnishing all labor and equipment for the removal and disposal of the existing variable thickness bituminous concrete surface and all of the asbestos waterproofing membrane system from the bridge deck area or variable thickness bituminous concrete surface containing asbestos shown on the plans, in accordance with the requirements of Section 440 of the Standard Specifications, and the following.

Complete surface removal is required for the entire deck including the waterproofing membrane system, the removal shall be done in such a manner that the concrete deck or the concrete beams are not damaged.

The Contractor is advised that the waterproofing membrane system or bituminous concrete wearing contains asbestos. Therefore, he shall take all necessary precautions in removing, handling, transporting and subsequent disposal of all materials removed containing asbestos.

All such work shall be in conformance with all governing laws, codes, ordinances or other regulations.

The asbestos membrane, if present, shall be wet saw-cut and removed.

Grinding or roto-milling the existing wearing surface or the membrane system will not be allowed.

All removed material containing asbestos shall be stockpiled separately from other removed material.

All stockpiled material containing asbestos, shall be hauled to an approved landfill disposal site. This removed material shall be wetted down in the truck and shall be covered with an approved wetting material to prevent debris or dust from entering into the atmosphere.

The Resident Engineer shall keep records of removal, stockpiling, trucking and the landfill disposal site used.

This work, as herein specified, will be paid for at the contract unit price per (square yard) square meter for BITUMINOUS CONCRETE SURFACE REMOVAL (ASBESTOS), which price shall include removal of all asbestos waterproofing membrane system.

7254I

All District Engineers, Walter S. Kos & Thomas R. Walker

William T. Sunley

Special Provision for Temporary Modular Glare Screen System

October 1, 1999

This special provision was developed by the Bureau of Operations. The special provision may be inserted into contracts at the designer's discretion to require the use of temporary modular glare screen systems on concrete barrier walls in work zones. It lists the various systems that may be used on projects and also describes installation procedures, method of measurement, and basis of payment when this item is used.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the January 21, 2000 letting and for subsequent lettings and the Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on October 1, 1999.

## **Temporary Module Glare Screen System (BDE)**

Effective: January 1, 2000

Description. This work consists of furnishing, installing, and maintaining a temporary modular glare screen system on top of temporary barrier according to the modular glare screen system manufacturer's specifications. The temporary modular glare screen system shall consist of modular base units attached to the top of concrete barrier rail with blades evenly spaced and securely mounted to base units.

### Materials.

(a) Specifications. The modular base units and glare screen blades shall be compatible so the base unit and blades can be securely attached to each other. The base unit and blades shall be supplied from the same manufacturer.

The length of individual modular base units shall be a maximum of 3.05 m (10') or no longer than the nominal 3.05 m (10') length of the individual temporary concrete barrier sections. The width of the modular base units shall be a maximum width of 150 mm (6") or no wider than the top of the temporary concrete barrier rail.

The glare screen blades shall be FHWA highway green in color and made of impact resistant non-metallic high-density plastic material. The blades shall have a height from 600 mm (24") to 750 mm (30") and a width from 150 mm (6") to 225 mm (9"). The same uniform sized blades shall be used throughout the project.

(b) Producers. The following modular glare screen systems may be used:

(1) Carsonite Modular Guidance System

Carsonite International  
1301 Hot Springs Road  
Carson City, NV 89706  
Phone: (800) 327-9647

(2) Safe-Hit Glare System

Safe-Hit Corporation  
1390 W. Winton Avenue  
Building 11  
Hayward, CA 94545  
Phone: (800) 537-8958

(3) FlexStake Glare Screen

FlexStake, Inc.  
2348 Bruner Lane SE  
Ft. Myers, FL 33912  
Phone: (800) 348-9839

Installation. The contractor shall install the temporary modular glare screen system according to the manufacturer's instructions. The temporary modular glare screen system shall be installed so that it is centered along the longitudinal axis length to the top of the concrete barrier rail and is flush with the rail so that the modular base unit does not extend over the joints between the concrete barrier sections. The glare screen blades shall be installed so the combination of blade width and spacing provide for a minimum 22-degree sight cut-off angle.

The contractor shall, at their own expense, maintain and repair the temporary modular glare screen system throughout the duration of the project.

Method of Measurement. The temporary modular glare screen system will be measured for payment in meters (feet) in place, measured along the centerline of the modular glare screen system.

Basis of Payment. The installation, maintenance, and removal of the temporary modular glare screen system will be paid at the contract unit price per meter (foot) for MODULAR GLARE SCREEN SYSTEM.

80008

All District Engineers, Walter S. Kos, & Thomas R. Walker

William T. Sunley

Special Provision for CRC Pavement

January 19, 2000

This special provision was developed by the Bureau of Materials and Physical Research. These revisions to Article 421.07 are to be used when specific field conditions are encountered. This should be used when CRC Pavement is placed between structures that are in close proximity to each other.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the April 28, 2000 letting and for subsequent lettings and the Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 19, 2000.



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Superpave Bituminous Concrete Mixtures

September 27, 2002

This special provision has been revised to set the minimum lift thickness at three times the nominal maximum aggregate size; additionally, density requirements for leveling binder now take effect at 32 mm (1 1/4 in.).

This special provision should be inserted into all bituminous concrete Superpave contracts and should be used in conjunction with the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures".

The Bureau of Materials & Physical Research's "Superpave Guidelines" should be used in conjunction with this document. The guidelines provide an explanation of Superpave and all of its aspects.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80010m

## **SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)**

Effective: January 1, 2000

Revised: January 1, 2003

Description. This work shall consist of designing, producing and constructing Superpave bituminous concrete mixtures using Illinois Modified Strategic Highway Research Program (SHRP) Superpave criteria. This work shall be according to Sections 406 and 407 of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as follows.

### Materials.

- (a) Fine Aggregate Blend Requirement. The Contractor may be required to provide FA 20 manufactured sand to meet the design requirements. For mixtures with  $N_{design} \geq 90$ , at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation.
- (b) Reclaimed Asphalt Pavement (RAP). If the Contractor is allowed to use more than 15 percent RAP, as specified in the plans, a softer performance-graded binder may be required as determined by the Engineer.

RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP will not be permitted in mixtures containing polymer modifiers.

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

- (c) Bituminous Material. The asphalt cement (AC) shall be performance-graded (PG) or polymer modified performance-graded (SBS-PG or SBR-PG) meeting the requirements of Article 1009.05 of the Standard Specifications for the grade specified on the plans.

The following additional guidelines shall be used if a polymer modified asphalt is specified:

- (1) The polymer modified asphalt cement shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. Polymer modified asphalt cement shall be placed in an empty tank and shall not be blended with other asphalt cements.
- (2) The mixture shall be designed using a mixing temperature of  $163 \pm 3^\circ\text{C}$  ( $325 \pm 5^\circ\text{F}$ ) and a gyratory compaction temperature of  $152 \pm 3^\circ\text{C}$  ( $305 \pm 5^\circ\text{F}$ ).
- (3) Pneumatic-tired rollers will not be allowed unless otherwise specified by the Engineer. A vibratory roller meeting the requirements of Article 406.16 of the

Standard Specifications shall be required in the absence of the pneumatic-tired roller.

- (4) A manufacturer's representative from the polymer asphalt cement producer shall be present during each polymer mixture start-up and shall be available at all times during production and lay-down of the mix.

#### Laboratory Equipment.

- (a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all QC/QA testing.
- (b) Ignition Oven. The ignition oven shall be used to determine the AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

Mixture Design. The Contractor shall submit mix designs, for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

|              |   |
|--------------|---|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design  |
| AASHTO PP 2  | Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)  |
| AASHTO PP 19 | Standard Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)  |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA   |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures  |
| AASHTO T 312 | Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor |
| AASHTO T 308 | Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method                                       |

- (a) Mixture Composition. The ingredients of the bituminous mixture shall be combined in such proportions as to produce a mixture conforming to the composition limits by weight.

The gradation mixture specified on the plans shall produce a mixture falling within the limits specified in Table 1.

| <b>TABLE 1. MIXTURE COMPOSITION (% PASSING)<sup>1/</sup></b> |                   |                  |                   |                  |                                |                  |                               |                  |
|--|-------------------|------------------|-------------------|------------------|--------------------------------|------------------|-------------------------------|------------------|
| <b>Sieve Size</b>  | <b>IL-25.0 mm</b> |                  | <b>IL-19.0 mm</b> |                  | <b>IL-12.5 mm<sup>4/</sup></b> |                  | <b>IL-9.5 mm<sup>4/</sup></b> |                  |
|  | <b>min</b>        | <b>max</b>       | <b>min</b>        | <b>max</b>       | <b>min</b>                     | <b>max</b>       | <b>min</b>                    | <b>max</b>       |
| <b>37.5 mm<br/>(1 1/2 in.)</b>                               |                   | 100              |                   |                  |                                |                  |                               |                  |
| <b>25 mm<br/>(1 in.)</b>                                     | 90                | 100              |                   | 100              |                                |                  |                               |                  |
| <b>19 mm<br/>(3/4 in.)</b>                                   |                   | 90               | 82                | 100              |                                | 100              |                               |                  |
| <b>12.5 mm<br/>(1/2 in.)</b>                                 | 45                | 75               | 50                | 85               | 90                             | 100              |                               | 100              |
| <b>9.5 mm<br/>(3/8 in.)</b>                                  |                   |                  |                   |                  |                                | 90               | 90                            | 100              |
| <b>4.75 mm<br/>(#4)</b>                                      | 24                | 42 <sup>2/</sup> | 24                | 50 <sup>2/</sup> | 24                             | 65               | 24                            | 65               |
| <b>2.36 mm<br/>(#8)</b>                                      | 16                | 31               | 16                | 36               | 16                             | 48 <sup>3/</sup> | 16                            | 48 <sup>3/</sup> |
| <b>1.18 mm<br/>(#16)</b>                                     | 10                | 22               | 10                | 25               | 10                             | 32               | 10                            | 32               |
| <b>600 µm<br/>(#30)</b>                                      |                   |                  |                   |                  |                                |                  |                               |                  |
| <b>300 µm<br/>(#50)</b>                                      | 4                 | 12               | 4                 | 12               | 4                              | 15               | 4                             | 15               |
| <b>150 µm<br/>(#100)</b>                                     | 3                 | 9                | 3                 | 9                | 3                              | 10               | 3                             | 10               |
| <b>75 µm<br/>(#200)</b>                                      | 3                 | 6                | 3                 | 6                | 4                              | 6                | 4                             | 6                |

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 40 percent passing the 4.75 mm (#4) sieve for binder courses with Ndesign ≥ 90.
- 3/ The mixture composition shall not exceed 40 percent passing the 2.36 mm (#8) sieve for surface courses with Ndesign ≥ 90.
- 4/ The mixture composition for surface courses shall be according to IL-12.5 mm or IL-9.5 mm, unless otherwise specified by the Engineer.

One of the above gradations shall be used for leveling binder as specified in the plans and according to Article 406.04 of the Standard Specifications.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

- (b) Dust/AC Ratio for Superpave. The ratio of material passing the 75  $\mu\text{m}$  (#200) sieve to total asphalt cement shall not exceed 1.0 for mixture design (based on total weight of mixture).
- (c) Volumetric Requirements. The target value for the air voids of the hot mix asphalt (HMA) shall be 4.0 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the requirements listed in Table 2.

| <b>TABLE 2. VOLUMETRIC REQUIREMENTS</b> |  |                |                |               |   |
|---|--|----------------|----------------|---------------|---|
|   | <b>Voids in the Mineral Aggregate (VMA), % minimum</b> |                |                |               | <b>Voids Filled with Asphalt (VFA), %</b> |
| <b>Ndesign</b>                          | <b>IL-25.0</b>   | <b>IL-19.0</b> | <b>IL-12.5</b> | <b>IL-9.5</b> |   |
| <b>50</b>                               | 12.0   | 13.0           | 14.0           | 15            | 65 - 78                                   |
| <b>70</b>                               |  |                |                |               | 65 - 75                                   |
| <b>90</b>                               |  |                |                |               |   |
| <b>105</b>                              |  |                |                |               |   |

- (d) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified T 283 using 4 in. Marshall bricks. To be considered acceptable by the Department as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Department. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Plant Tests. Testing shall be conducted to control the production of the bituminous mixture. The Contractor shall use the test methods identified to perform the following mixture tests at a frequency not less than that indicated in Table 3.

| <b>TABLE 3. REQUIRED PLANT TESTS for SUPERPAVE</b> |  |  |
|--|--|--|
| <b>Parameter</b>                                   |  | <b>Frequency of Tests</b>  |
| Asphalt Content by Ignition Oven                   |  | 1 per half day of production   |
| Air Voids  | Bulk Specific Gravity of Gyratory Sample | 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day) |
|  | Maximum Specific Gravity of Mixture      |  |
|  |  | Illinois Modified AASHTO T 308   |
|  |  | Illinois Modified AASHTO T 312   |
|  |  | Illinois Modified AASHTO T 209   |

During production, the ratio of minus 75  $\mu\text{m}$  (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2 and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75  $\mu\text{m}$  (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resuming production.

During production, mixtures containing an anti-stripping additive will be tested by the Department for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

### Construction Requirements

#### Lift Thickness.

- (a) Binder and Surface Courses. The minimum compacted lift thickness for constructing bituminous concrete binder and surface courses shall be according to Table 4:

| <b>TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS</b> |                     |
|---|---------------------|
| Mixture   | Thickness, mm (in.) |
| IL-9.5  | 32 (1 1/4)          |
| IL-12.5   | 38 (1 1/2)          |
| IL-19.0   | 57 (2 1/4)          |
| IL-25.0   | 76 (3)              |

(b) Leveling Binder. Mixtures used for leveling binder shall be as follows:

| <b>TABLE 5 – LEVELING BINDER</b>                        |                   |
|---|-------------------|
| Nominal, Compacted, Leveling Binder Thickness, mm (in.) | Mixture           |
| ≤ 32 (1 1/4)  | IL-9.5            |
| 32 (1 1/4) to 50 (2)                                    | IL 9.5 or IL-12.5 |

Density requirements shall apply for leveling binder when the nominal, compacted thickness is 32 mm (1 1/4 in.) or greater for IL-9.5 mixtures and 38 mm (1 1/2 in.) or greater for IL-12.5 mixtures.

(c) Full-Depth Pavement. The compacted thickness of the initial lift of binder course shall be 100 mm (4 in.). The compacted thickness of succeeding lifts shall meet the minimums specified in Table 4 but not exceed 100 mm (4 in.).

If a vibratory roller is used for breakdown, the compacted thickness of the binder lifts, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

(d) Bituminous Patching. The minimum compacted lift thickness for constructing bituminous patches shall be according to Table 4.

Control Charts/Limits. Control charts/limits shall be according to QC/QA Class I requirements, except density shall be plotted on the control charts within the following control limits:

| <b>TABLE 6. DENSITY CONTROL LIMITS</b> |                        |
|--|------------------------|
| <b>Parameter</b>                       | <b>Individual Test</b> |
| Ndesign ≥ 90                           | 92.0 - 96.0%           |
| Ndesign < 90                           | 93 - 97%               |

Basis of Payment. On resurfacing projects, this work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On resurfacing projects in which polymer modifiers are required, this work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, POLYMERIZED LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and POLYMERIZED BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On full-depth pavement projects, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE PAVEMENT, (FULL-DEPTH), SUPERPAVE, of the thickness specified.

80010



All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision RAP for Use in Bituminous Concrete Mixtures

January 11, 2002

This special provision has been revised by the Bureau of Materials and Physical Research. Revisions include allowing RAP to be used from routes or airfields under federal and local agency jurisdiction, improving the consistency of conglomerate RAP and allowing RAP from bituminous aggregate mixtures (BAM) to be worked back into stabilized subbase and BAM shoulders.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 26, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 11, 2002.

80011m

## RAP FOR USE IN BITUMINOUS CONCRETE MIXTURES (BDE)

Effective: January 1, 2000

Revised: April 1, 2002

Revise Article 1004.07 to read:

**“1004.07 RAP Materials.** RAP is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt pavement. RAP must originate from routes or airfields under federal, state or local agency jurisdiction. The Contractor shall supply documentation that the RAP meets these requirements.

(a) Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP will be allowed on top of the pile after the pile has been sealed.

(1) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only and represent the same aggregate quality, but shall be at least C quality or better, the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag), similar gradation and similar AC content. If approved by the Engineer, combined single pass surface/binder millings may be considered “homogenous”, with a quality rating dictated by the lowest coarse aggregate quality present in the mixture. Homogenous stockpiles shall meet the requirements of Article 1004.07(d). Homogeneous RAP stockpiles not meeting these requirements may be processed (crushing and screening) and retested.

(2) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only. The coarse aggregate in this RAP shall be crushed aggregate only and may represent more than one aggregate type and/or quality but shall be at least C quality or better. This RAP may have an inconsistent gradation and/or asphalt cement content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 16 mm (5/8 in.) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate RAP stockpiles shall meet the requirements of Article 1004.07(d).

(3) Conglomerate “D” Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP containing coarse aggregate (crushed or round) that is at least D quality or better. This RAP may have an inconsistent gradation and/or asphalt content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate DQ RAP shall meet the requirements of Article 1004.07(d).

Reclaimed Superpave Low ESAL IL-9.5L surface mixtures shall only be placed in conglomerate DQ RAP stockpiles due to the potential for rounded aggregate.

(4) Other. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Other". "Other" RAP stockpiles shall not be used in any of the Department's bituminous mixtures.

- (b) Use. The allowable use of a RAP stockpile shall be set by the lowest quality of coarse aggregate in the RAP stockpile. Class I/Superpave surface mixtures are designated as containing Class B quality coarse aggregate only. Superpave Low ESAL IL-19.0L binder and IL-9.5L surface mixtures are designated as Class C quality coarse aggregate only. Class I/Superpave binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate only. Bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate only. Any mixture not listed above shall have the designated quality determined by the Department.

RAP containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in Class I/Superpave (including Low ESAL) surface mixtures only. RAP stockpiles for use in Class I/Superpave mixtures (including Low ESAL), base course, base course widening and Class B mixtures shall be either homogeneous or conglomerate RAP stockpiles except conglomerate RAP stockpiles shall not be used in Superpave surface mixture Ndesign 50 or greater. RAP for use in bituminous aggregate mixtures (BAM) shoulders and BAM stabilized subbase shall be from homogeneous, conglomerate, or conglomerate DQ stockpiles.

Additionally, RAP used in Class I/Superpave surface mixtures shall originate from milled or crushed mixtures only, in which the coarse aggregate is of Class B quality or better. RAP stockpiles for use in Class I/Superpave (including Low ESAL) binder mixes as well as base course, base course widening and Class B mixtures shall originate from milled or processed surface mixture, binder mixture, or a combination of both mixtures uniformly blended to the satisfaction of the Engineer, in which the coarse aggregate is of Class C quality or better.

- (c) Contaminants. RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

- (d) Testing. All RAP shall be sampled and tested either during or after stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 450 metric tons (500 tons) for the first 1800 metric tons (2,000 tons) and one sample per 1800 metric tons (2,000 tons) thereafter. A minimum of five tests shall be required for stockpiles less than 3600 metric tons (4,000 tons).

For testing existing stockpiles, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to extract representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

All of the extraction results shall be compiled and averaged for asphalt content and gradation. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

| Parameter         | Homogeneous / Conglomerate | Conglomerate "D" Quality |
|-------------------|----------------------------|--------------------------|
| 25 mm (1 in.)     |                            | ± 5%                     |
| 12.5 mm (1/2 in.) | ± 8%                       | ± 15%                    |
| 4.75 mm (No. 4)   | ± 6%                       | ± 13%                    |
| 2.36 mm (No. 8)   | ± 5%                       |                          |
| 1.18 mm (No. 16)  |                            | ± 15%                    |
| 600 µm (No. 30)   | ± 5%                       |                          |
| 75 µm (No. 200)   | ± 2.0%                     | ± 4.0%                   |
| AC                | ± 0.4%                     | ± 0.5%                   |

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt content test results fall outside the appropriate tolerances, the RAP will not be allowed to be used in the Department's bituminous concrete mixtures unless the RAP representing the failing tests is removed from the stockpile to the satisfaction of the Engineer. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

- (e) Designs. At the Contractor's option, bituminous concrete mixtures may be constructed utilizing RAP material meeting the above detailed requirements. The amount of RAP included in the mixture shall not exceed the percentages specified in the plans.

RAP designs shall be submitted for volumetric verification. If additional RAP stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP stockpile

and design, and meets all of the requirements herein, the additional RAP stockpiles may be used in the original mix design at the percent previously verified.

- (f) Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the bituminous mixture being produced.

To remove or reduce agglomerated material, a scalping screen, crushing unit or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP and either switch to the virgin aggregate design or submit a new RAP design.

80011

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Pavement and Shoulder Resurfacing

April 19, 2002

This special provision was developed by the Bureau of Design and Environment in an effort to maximize motorist safety and minimize motorist inconvenience. It has been revised to change the sequence of resurfacing.

This special provision shall be included in all resurfacing projects on all four lane interstates and other freeways, all four lane expressways, other four lane highways where the ADT exceeds 25,000 or peak one-way VPH exceeds 1700, and two lane highways where the ADT exceeds 10,000 or peak one-way VPH exceeds 800, and where significant traffic delays are expected.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 2, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 19, 2002.

80013m

## PAVEMENT AND SHOULDER RESURFACING (BDE)

Effective: February 1, 2000

Revised: August 1, 2002

Revise Article 406.20 of the Standard Specifications to read:

**“406.20 Resurfacing Sequence.** The resurfacing operations shall satisfy the following requirements:

- (a) Before paving in a lane, the adjacent lane and its shoulder must be at the same elevation.
- (b) Each lift of resurfacing shall be completed, including shoulders, before the next lift is begun.
- (c) Elevation differences between lanes shall be eliminated within twelve calendar days.

Revise the first paragraph of Article 406.23 of the Standard Specifications to read:

**“406.23 Method of Measurement.** This work will be measured for payment according to the following:”

Revise the first sentence of the ninth paragraph of Article 406.23 of the Standard Specifications to read:

“When a Superpave Binder and Surface Course mixture is used on shoulders and is placed simultaneously with the traffic lane as specified in Section 482, the quantity of bituminous mixture placed on the traffic lane that will be paid for will be limited to a calculated tonnage based upon actual mat width and length, plan thickness or a revised thickness authorized by the Engineer, and design mix weight per millimeter (inch) of thickness.”

Delete the tenth paragraph of Article 406.23 of the Standard Specifications.

Replace the first sentence of the second paragraph Article 482.02 of the Standard Specifications with the following:

“For lifts with a thickness of 44 mm (1 3/4 in.) or greater, the aggregate used shall meet the gradation requirements for a CA 10. For lifts with a thickness less than 44 mm (1 3/4 in.) the aggregate used shall meet the gradation requirements for a CA 12.”

Revise the first paragraph of Article 482.04 of the Standard Specifications to read:

**“482.04 General.** For pavement and shoulder resurfacing projects, Class I Binder and Surface Course mixtures or Superpave mixtures designed at 50 gyrations or greater may be used in lieu of Bituminous Aggregate Mixture for the resurfacing of shoulders, at the option of the Contractor, or shall be used when specified in the plans.”

Replace the third sentence of the first paragraph of Article 482.05 of the Standard Specifications with the following:

“Superpave and Class I mixtures used as the top lift and other lifts less than 44 mm (1 3/4 in.) shall meet the gradation requirements for Superpave and B Binder of Surface Course mixture according to Article 406.13.”

Revise the second paragraph of Article 482.06 of the Standard Specifications to read:

“On pavement and shoulder resurfacing projects, the resurfacing sequence shall be according to Article 406.20. When the Superpave mixture option is used, the shoulders may be placed, at the Contractor’s option, simultaneously with the adjacent traffic lane for both the binder and surface courses, provided the specified density, thickness and cross slope of both the pavement and shoulder can be satisfactorily obtained.”

80013



All District Engineers, Walter S. Kos & Thomas R. Walker

William T. Sunley

Special Provision for Public Convenience and Safety

January 19, 2000

This special provision was developed by the Bureau of Design and Environment in an effort to minimize motorist costs and inconvenience.

This special provision shall be included on all projects an Average Daily Traffic of 25,000 or more. A Traffic Capacity Analysis and a Queuing Analysis should still be performed on all roadways with an ADT of 25,000 or greater. If it is determined that the ADT on the weekend is lower than during the week, it may be beneficial to allow or require work on the weekends. In these cases contracts should contain specifications to allow such work. Projects with less than 25,000 ADT but with still relatively high volumes, especially interstates, shall also have a Traffic Capacity Analysis and a Queuing Analysis completed to evaluate the possible benefit of prohibiting weekend lane closures. The design plans coversheet shall show the ADT when it exceeds 25,000.

The Central Bureau will insert this Special Provision for lettings prior to the April 28, 2000 letting. The districts should include the BDE Check Sheet with the applicable BDE Special Provisions for the April 28,2000 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 19, 2000.

**Public Convenience and Safety (BDE)**

Effective: January 1, 2000

Add the following paragraph after the fourth paragraph of Article 107.09 of the Standard Specifications.

“On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical.”

80015

All District Engineers, Walter S. Kos & Thomas R. Walker

Michael L. Hine

Payment to Subcontractors

May 10, 2000

This special provision was developed by the Bureau of Construction. This special provision was developed to ensure that contractors pay subcontractors for satisfactory performance of their subcontracts within a specific number of days after receipt of each payment made to the contractor, and to require the prompt return of retainage withheld from subcontractors.

This special provision should be inserted into all contracts.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the August 4, 2000 letting and for subsequent lettings and the Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on May 10, 2000.

## **Payments to Subcontractors (BDE)**

Effective: June 1, 2000

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require contractors to pay subcontractors for satisfactory performance of their subcontracts within a specific number of days after receipt of each payment made to the contractor, and to require the prompt return of retainage withheld from subcontractors.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a contractor receives any payment from the Department, the contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

As partial payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the partial payment to the Contractor. Subcontractors shall be paid in full, including the return of any retainage previously withheld, within 15 calendar days after the subcontractor's work has been satisfactorily completed.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond in accordance with the Public Construction Bond Act, 30 ILCS 550.

## **FLUORESCENT ORANGE SHEETING ON DRUMS (BDE)**

Effective: November 1, 2000

Revised: January 1, 2003

Revise the first sentence of the first paragraph of Article 702.03(e) of the Standard Specifications to read:

“Drums shall be nonmetallic and have alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes.”

80025

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Disadvantaged Business Enterprise  
Participation

August 7, 2002

This special provision was developed by the Bureau of Small Business Enterprises. It has been revised to update the overall goal of the Department.

This special provision should be inserted in contracts with DBE goals.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be emailed to the districts on August 7, 2002.

80029m

## **DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)**

Effective: September 1, 2000

Revised: October 1, 2002

**FEDERAL OBLIGATION.** The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

**CONTRACTOR ASSURANCE.** The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor:

The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

**OVERALL GOAL SET FOR THE DEPARTMENT.** As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal is 12.14% of all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve this goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

**CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR.** This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform \_\_\_\_\_% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

- (a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

**DBE LOCATOR REFERENCES.** Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at [www.dot.state.il.us](http://www.dot.state.il.us).

**BIDDING PROCEDURES.** Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.

- (a) In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.



- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:
- (1) The name and address of each DBE to be used;
  - (2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;
  - (3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
  - (4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and
  - (5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).
- (d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

**CALCULATING DBE PARTICIPATION.** The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100% goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.
- (d) DBE as a trucker: 100% goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed and insured by the DBE must be used on the contract. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.
- (e) DBE as a material supplier:
  - (1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
  - (2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
  - (3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4)
  - a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
  - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
  - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
  - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the Contractor has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.
- (c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not

meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid nonresponsive.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

- (a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.
- (c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon

request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material without regard to any retainage withheld by the Department, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the District Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

- (d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

All District Engineers, Walter S. Kos & Judith C. Rice

Michael L. Hine

Special Provision for Calcium Chloride Accelerator for Portland  
Cement Concrete

September 22, 2000

This special provision was developed by the Bureau of Materials and Physical Research. This special provision originated from the FHWA Accelerated Patching Quality Improvement Team recommendations, and from work conducted by the PCC Technical Group Subcommittee. The special provision allows the use of a calcium chloride accelerator for patching.

This special provision should be included on projects as determined by the District. The special provision is not recommended for repairs to recently constructed pavements or bridge decks.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the January 19, 2001 letting and for subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on September 22, 2000.

**CALCIUM CHLORIDE ACCELERATOR FOR PORTLAND CEMENT  
CONCRETE PATCHING (BDE)**

Effective: January 1, 2001

The Contractor has the option to use a calcium chloride accelerator for Class PP-1 or Class PP-2 concrete.

80031

All District Engineers, Walter S. Kos, & Judith C. Rice

Michael L. Hine

Special Provision for Remove and Re-erect Steel Plate Beam  
Guardrail and Traffic Barrier Terminals

September 22, 2000

This special provision was developed by the Bureau of Design and Environment. This special provision requires the replacement of steel block-outs with wood block-outs during the removal and re-erection of steel plate beam guardrail and traffic barrier terminals.

This special provision should be inserted into all contracts in which removal and re-erection of steel plate beam guardrail and traffic barrier terminals will be performed.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the January 19, 2001 letting and for subsequent lettings and the Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on September 22, 2000.

**REMOVE AND RE-ERECT STEEL PLATE BEAM GUARDRAIL AND  
TRAFFIC BARRIER TERMINALS**

Effective: January 1, 2001

Existing steel block-outs shall be replaced with wooden block-outs during the removal and re-erection of steel plate beam guardrail and traffic barrier terminals. The Wood block-outs shall be according to the current standard applicable to the type of guardrail or terminal section being re-erected.

The existing steel posts may be drilled to match the bolt pattern shown on standard 630001 for the wood block-out or a new steel post shall be provided.

All existing "C" posts shall be removed and new steel posts shall be provided.

Payment for the replacement of the existing block-outs with new wood block-outs and the modification of the existing steel posts or new replacement posts shall be included in the contract unit price per meter (foot) for REMOVE AND RE-ERECT STEEL PLATE BEAM GUARDRAIL, of the type specified, and at the contract unit price each for REMOVE AND RE-ERECT TRAFFIC BARRIER TERMINALS, of the type specified. 80032



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Portland Cement Concrete Patching

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research from the FHWA Accelerated Patching Qualified Improvement Team recommendations, and from work conducted by the PCC Technical Group Subcommittee. The special provision provides additional rapid set patching mixtures, clarifies the use of admixtures and changes the opening strength requirements.

It has been revised to remove the 12 hour mix design strength criteria and to remove the option of replacing Type I Cement with Class C fly ash in Class PP-2 concrete.

This special provision should be included on projects using portland cement concrete for pavement patching or bridge deck patching.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80036m

## **PORTLAND CEMENT CONCRETE PATCHING (BDE)**

Effective: January 1, 2001

Revised: August 1, 2003

Revise Note 1 of Article 442.02 of the Standard Specifications, to read:

"Note 1. When patching ramp pavements and two lane pavements with two way traffic, Class PP-2, PP-3, or PP-4 concrete shall be used for Class A, Class B and Class C patching. For all other pavements, Class PP-1, PP-2, PP-3, or PP-4 concrete shall be used, at the Contractor's option, for Class A, Class B and Class C patching."

Delete Note 2 of Article 442.02 of the Standard Specifications.

Add the following to Article 442.02 of the Standard Specifications:

"(I) Calcium Chloride (Note 5) ..... 1013.01

Note 5. The calcium chloride accelerator shall be Type L (Liquid) with a minimum of 32.0 percent by mass (weight) of calcium chloride."

Revise the first paragraph of Article 442.06(e) of the Standard Specifications to read:

"(e) Concrete Placement. For Class A, Class B and Class C Patches, concrete shall be placed according to Article 420.07 and governed by the limitations set forth in Article 1020.14, except that the maximum temperature of the mixed concrete immediately before placing shall be 35 °C (96 °F), the required use of an approved retarding admixture when the plastic concrete reaches 30 °C (85 °F) shall not apply."

Revise the first paragraph of Article 442.06(h) of the Standard Specifications to read:

"(h) Curing and Protection. In addition to Article 1020.13, when the air temperature is less than 13 °C (55 °F), the Contractor shall cover the patch with minimum R12 insulation until opening strength is reached. Insulation is optional when the air temperature is 13 °C - 35 °C (55 °F - 96 °F). Insulation shall not be placed when the air temperature is greater than 35 °C (96 °F)."

Revise the second paragraph of Article 701.05(e)(1)d.1. of the Standard Specifications to read:

"No open holes, broken pavement, or partially filled holes shall remain overnight for bituminous patching or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used. The only exception is conditions beyond the control of the Contractor."

Revise Article 701.05(e)(2)b. of the Standard Specifications to read:

- "b. Strength Tests. For patches constructed with Class PP-1, PP-2, PP-3, or PP-4 concrete, the pavement may be opened to traffic when test specimens cured with the patches have obtained a minimum flexural strength of 4150 kPa (600 psi) or a minimum compressive strength of 22,100 kPa (3200 psi) according to Article 1020.09.

For patches constructed with Class PP-2, PP-3, or PP-4 concrete which can obtain a minimum flexural strength of 4150 kPa (600 psi) or a minimum of compressive strength of 22,100 kPa (3200 psi) in 16 hours, the pavement may be opened to traffic at a lower opening strength. The specimens cured with the patches shall have obtained a minimum flexural strength of 2050 kPa (300 psi) or a minimum compressive strength of 11,000 kPa (1600 psi) according to Article 1020.09, to permit opening pavement to traffic.

With the approval of the Engineer, concrete strength may be determined according to AASHTO T 276. The strength-maturity relationship shall be developed from concrete which has an air content near the upper specification limit. The strength-maturity relationship shall be re-established if the mix design or materials are changed."

Revise Article 701.05(e)(2)c. of the Standard Specifications to read:

- "c. Construction Operations. For Class PP-2, PP-3, or PP-4 concrete used on ramp pavements and two lane pavements with two way traffic, or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used for other pavements, Contractor construction operations shall be performed in a manner which allows the patches to be opened the same day and before nightfall. If patches are not opened before nightfall, the additional traffic control shall be at the Contractor's expense. Any time patches cannot be opened before nightfall, the Contractor shall change subsequent construction operations or the mix design. The changes shall be at no additional cost to the Department."

Revise Table 1 of Article 1020.04 of the Standard Specifications by replacing Class PP concrete with the following:

| "TABLE 1. CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA |  |                                 |  |  |
|---|--|---------------------------------|--|--|
| Class of Concrete   | Use  | Specification Section Reference | Cement Factor<br>kg/cu m (cwt/cu yd)   | Max.<br>Water/Cement<br>Ratio<br>kg/kg (lb/lb) |
| PP-1  | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442                             | Type I Cement<br>385 to 445 (6.50 to 7.50)<br>Type III Cement<br>365 to 425 (6.20 to 7.20) | 0.44   |

|      |  |     |   |      |
|------|--|-----|---|------|
| PP-2 | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442 | Type I Cement<br>435 (7.35)                         | 0.38 |
| PP-3 | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442 | Type III Cement<br>435 (7.35)                       | 0.35 |
| PP-4 | PCC<br>Pavement Patching<br>Bridge Deck Patching | 442 | Rapid Hardening Cement<br>355 to 370 (6.00 to 6.25) | 0.50 |

For PP-1, the Contractor has the option to replace the Type I Cement with Class C fly ash or ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 15 percent by mass (weight), at a minimum replacement ratio of 1.5:1.

For PP-2, the Contractor has the option to replace the Type I cement with ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 30 percent by mass (weight), at a minimum replacement ratio of 1:1.

For PP-3, in addition to the cement, 45kg (100 lb) of ground granulated blast-furnace slag and 23 kg (50 lb) of microsilica are required. For an air temperature greater than 30 °C (85 °F), the Contractor has the option to replace the Type III cement with Type I cement.

For PP-4, the cement shall be from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs".

| TABLE 1. (CONT'D) CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA |                 |  |   |                |  |
|---|-----------------|--|---|----------------|--|
| Class of Concrete   | Slump, mm (in.) | Mix Design Compressive Strength, kPa (psi) | Mix Design Flexural Strength, kPa (psi) | Air Content, % | Coarse Aggregate Gradations Permitted    |
|   |                 | Hours                                      | Hours                                   |                |  |
|   |                 | 48   | 48                                      |                |  |
| PP – 1  | 100 (4)<br>Max  | 22,100<br>(3200)                           | 4150<br>(600)                           | 4.0 – 7.0      | CA-7, CA-11,<br>CA-13, CA14, or<br>CA-16 |
| PP – 2  | 150 (6)<br>Max  | 22,100<br>(3200)                           | 4150<br>(600)                           | 4.0 – 6.0      | CA-7, CA-11,<br>CA-13, CA14, or<br>CA-16 |
| PP – 3  | 100 (4)<br>Max  | 22,100<br>(3200)                           | 4150<br>(600)                           | 4.0 – 6.0      | CA-7, CA-11,<br>CA-13, CA14, or<br>CA-16 |
| PP – 4  | 150 (6)<br>Max  | 22,100<br>(3200)                           | 4150<br>(600)                           | 4.0 – 6.0      | CA-7, CA-11,<br>CA-13, CA14, or<br>CA-16 |

For PP-1, PP-2, PP-3 or PP-4; only CA-13, CA-14, or CA-16 may be used for bridge deck patching. In addition, the mix design strength at 48 hours shall be increased to 27,500 kPa (4,000 psi) compressive or 4,650 kPa (675 psi) flexural for bridge deck patching.

For PP-1, the slump may be increased to 150 mm (6 in.) Max if a high range water-reducing admixture is used.”

Revise the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

"(b) Admixtures. Except as specified, the use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted only when approved in writing by the Engineer. The Department will maintain an Approved List of Concrete Admixtures. If the Department specifies a calcium chloride accelerator, it shall be a solution according to Article 442.02, Note 5."

Replace the fourth paragraph of Article 1020.05(b) with the following seven paragraphs:

“At the Contractor’s option, admixtures other than air entraining agents may be used for Class PP-1 concrete. The accelerator shall be the non-chloride type. If a water-reducing or retarding admixture is used, the cement factor may be reduced a maximum 18 kg/cu m (0.30 hundredweight/cu yd). If a high range water-reducing admixture is used, the cement factor may be reduced a maximum 36 kg/cu m (0.60 hundredweight/cu yd). Cement factor reductions shall not be cumulative when using multiple admixtures. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

If Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 concrete, a water-reducing or high range water-reducing admixture shall be used. However, the cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used. In addition, an accelerator shall not be used.

For Class PP-2 or PP-3 concrete; a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air entraining admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-2 or PP-3 concrete, the Contractor has the option to use a water-reducing admixture. A retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

When the air temperature is less than 13 °C (55 °F.) for Class PP-1 or PP-2 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air entraining admixture. The Contractor has the option to use a water-reducing admixture. An accelerator shall not be used. For stationary or truck mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use a mobile portland cement concrete plant according to Article 1103.04, but a retarding admixture shall not be used unless approved by the Engineer. A water-

reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

If the Department specifies a calcium chloride accelerator for Class PP-1 concrete, the maximum chloride dosage shall be 1.0 L (1.0 quart) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.0 L (2.0 quarts) per 45 kg (100 lb) of cement if approved by the Engineer. If the Department specifies a calcium chloride accelerator for Class PP-2 concrete, the maximum chloride dosage shall be 1.3 L (1.3 quarts) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.6 L (2.6 quarts) per 45 kg (100 lb) of cement if approved by the Engineer.”

Delete Article 1020.05(g) of the Standard Specifications.

80036

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Sand Module Impact Attenuators

January 11, 2002

This special provision has been revised to allow sand modules from different manufacturers to be mixed in the same installation as well as to change the method of measurement and basis of payment.

This special provision should be included on projects using sand module impact attenuators.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 26, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 11, 2002.

80038m

## **SAND MODULE IMPACT ATTENUATORS (BDE)**

Effective: October 15, 1976

Revised: April 1, 2002

Description. This work shall consist of furnishing, erecting, and/or relocating sand module impact attenuators and the construction of attenuator bases when specified.

Impact Attenuators. Impact attenuators shall be the self purging sand module type. The modules shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 and shall be approved by the Department. The modules shall be preassembled to the greatest extent practicable so as to reduce to a minimum the on-site installation time. The attenuator installation shall be located, oriented, and the modules assembled and filled to the nominal weights as shown on the plans. Sand for filling the modules shall conform to the requirements of Article 1003.01 of the Standard Specifications for FA-1 or FA-2 Class A quality. Unbagged sand containing not more than 5 percent moisture shall be used for filling modules.

Attenuator Bases. Prior to constructing attenuator bases, the subgrade shall be prepared to the satisfaction of the Engineer.

Attenuator bases may be constructed of either portland cement concrete or bituminous at the option of the Contractor. Portland cement concrete bases shall be 150 mm (6 in.) thick and conform to the applicable requirements of Section 424 of the Standard Specifications. Bituminous bases shall be 200 mm (8 in.) thick and conform to the applicable requirements of Section 408 of the Standard Specifications.

The surface of the base shall be slightly sloped or crowned to facilitate drainage. The perimeter of each module and the specified mass (weight) of sand in each module shall be painted on the surface of the base.

Temporary. When specified as temporary, the impact attenuator shall be striped according to Standard 702001 for drums. All maintenance of the temporary impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer. When the Engineer determines the sand module impact attenuators are no longer required, the installation shall be dismantled with all sand modules and related hardware becoming the property of the Contractor.

Relocate. When the work specifies relocating the sand module impact attenuators as shown on the plans, each module shall be kept in proper orientation and position. The sand modules shall be refilled with sand when necessary.

Replacement. When the work specifies replacement of one or more individual sand module impact attenuators damaged by traffic, other than construction traffic, the following will apply. When damage to initial installation occurs, the damaged modules and the contents shall be removed completely and replaced with the required number of modules necessary to restore the installation to its original condition. The Contractor shall dispose of all damaged materials according to Article 202.03 of the Standard Specifications, and furnish and install new sand



modules as directed by the Engineer. Sand modules that are not damaged, but have been laterally shifted from their original position shall be realigned and relocated to their original locations, as directed by the Engineer. Any modules damaged by the Contractor's forces shall be replaced or relocated at his/her expense.

The Contractor shall respond within 12 hours to any call from the Engineer concerning replacement of the sand module impact attenuators. If the Contractor does not respond and does not complete his/her work within 36 hours after initial call from the Engineer, then the Contractor shall be liable to the Department from the time of the initial call, in the amount of \$200/calendar day, per sand module, not as a penalty but as liquidated damages, until replacement occurs.

Method of Measurement. Contract quantities for attenuator bases may be accepted according to Article 202.07(a) of the Standard Specifications. When measured, attenuator bases will be measured in place and the dimensions used to calculate square meters (square yards) will not exceed those as shown on the plans.

Sand module impact attenuators will be measured as each for each individual module.

Basis of Payment. Attenuator bases will be paid for at the contract unit price per square meter (square yard) for ATTENUATOR BASE.

Impact attenuators will be paid for at the contract unit price each for SAND MODULE IMPACT ATTENUATOR, SAND MODULE IMPACT ATTENUATOR (TEMPORARY), SAND MODULE IMPACT ATTENUATOR (RELOCATE), or SAND MODULE IMPACT ATTENUATOR (REPLACEMENT).

When the road is open to traffic, the Contractor may request inspection of the completed, permanent impact attenuator installation at each separate location. If the Engineer accepts the work, the Contractor will not be responsible for damage to the installation caused by traffic (other than construction traffic). When damage to the accepted installation occurs and it is determined the Contractor is not responsible as outlined herein, repairs to the installation shall be made by the Contractor and payment will be made according to Article 109.04 of the Standard Specifications.

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Superpave Bituminous Concrete Mixtures  
(Low ESAL)

September 27, 2002

This special provision was developed by the Bureau of Materials and Physical Research. It has been revised to set the minimum lift thickness at three times the nominal maximum aggregate size.

This special provision should be included when a Superpave mixture is required for a low volume (ADT) application and should be used in conjunction with the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures".

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80039m

## **SUPERPAVE BITUMINOUS CONCRETE MIXTURES (LOW ESAL) (BDE)**

Effective: January 1, 2001

Revised: January 1, 2003

Description. This work shall consist of constructing Bituminous Concrete Surface Course Superpave IL-9.5L and/or Bituminous Concrete Binder Course Superpave IL-19.0L according to Section 406 of the Standard Specifications and the special provision "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as modified herein.

### Materials.

(a) Coarse Aggregate. Coarse aggregate for the IL-19.0L shall meet the requirements of a Class I Type 3 binder course and the gradation specified below. For the IL-9.5L mixture, the coarse aggregate shall meet the requirements of a Class I Type 3 surface course except that gravel and Class C Quality, or better, aggregate may be used.

(b) Reclaimed Asphalt Pavement (RAP). RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

(c) Bituminous Material. The asphalt cement (AC), unless otherwise specified on the plans, shall be performance-graded (PG) 58-22. The AC shall meet the requirements of Article 1009.05 of the Standard Specifications for the grade specified.

If the Contractor is allowed to use more than 15 percent RAP, a softer PG binder may be required, as determined by the Engineer.

### Laboratory Equipment.

(a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all laboratory mixture compaction.

(b) Ignition Oven. The ignition oven shall be used for determination of AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors, which exceed 1.5 percent. If the calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of AC content.

Mixture Design. The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the

Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

|              |   |
|--------------|---|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design  |
| AASHTO PP 2  | Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)  |
| AASHTO PP 19 | Standard Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)  |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA   |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures  |
| AASHTO T 312 | Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor |
| AASHTO T 308 | Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method                                       |

(a) Mixture Composition. The job mix formula (JMF) shall fall within the following limits:

| Sieve             | Percent Passing                        |  |
|-------------------|--|--|
|                   | 9.5L                                   | 19.0L                                  |
| 25.0 mm (1 in.)   |  | 100                                    |
| 19.0 mm (3/4 in.) |  | 95-100                                 |
| 12.5 mm (1/2 in.) | 100                                    |  |
| 9.5 mm (3/8 in.)  | 95 – 100                               |  |
| 4.75 mm (#4)      | 52 – 80                                | 38-65                                  |
| 2.36 mm (#8)      | 38 – 65                                |  |
| 600 µm (#30)      | < 50% of the percentage passing the #4 | < 50% of the percentage passing the #4 |
| 75 µm (#200)      | 4.0 – 8.0                              | 3.0 – 7.0                              |
|                   |  |  |
| AC%               | 4.0 – 8.0                              | 4.0 – 8.0                              |
| RAP Materials     | Maximum 30%                            | Maximum 30%                            |
| #200:AC ratio     | 1.0 max. design                        | 1.0 max. design                        |

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

| Mix      | Design<br>Compactive<br>Effort | Design<br>Air Voids<br>Target<br>(%) | VMA (Voids in<br>the Mineral<br>Aggregate)<br>(min.) | VFA (Voids<br>Filled with<br>Asphalt) |
|----------|--------------------------------|--------------------------------------|--|---------------------------------------|
| IL 9.5L  | N <sub>DES</sub> =30           | 3.0%                                 | 14.0%  | 70 - 80%                              |
| IL 19.0L | N <sub>DES</sub> =30           | 4.0%                                 | 13.0%  | N/A                                   |

- (c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination shall be made on the basis of tests performed according to Illinois Modified T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those, which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Tests. Testing shall be conducted to control the production of the bituminous mixture at a frequency not less than that indicated below.

| <b>REQUIRED PLANT TESTS - Superpave (Low ESAL)</b> |  |                                |  |   |                                |
|--|--|--------------------------------|--|---|--------------------------------|
| <b>Parameter</b>                                   |  | <b>Frequency</b>               | <b>Tolerances</b>  | <b>Test Method</b>  |                                |
| Aggregate Gradation                                | IL-9.5L                                  | According to Class I QC/QA     | According to Class I QC/QA   | Illinois Procedure (See "Manual of Test Procedures for Materials.") |                                |
|  | IL-19.0L                                 | According to Non-Class I QC/QA | According to Non-Class I QC/QA   |   |                                |
| Asphalt Content by Ignition Oven                   | IL-9.5L                                  | According to Class I QC/QA     | According to Class I QC/QA   | Illinois Modified AASHTO T 308                                      |                                |
|  | IL-19.0L                                 | According to Non-Class I QC/QA | According to Non-Class I QC/QA   |   |                                |
| Air Voids  | Bulk Specific Gravity of Gyratory Sample | IL-9.5L                        | 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day) | According to Class I QC/QA  | Illinois Modified AASHTO T 312 |
|  |  | IL-19.0L                       | 1 per day  | According to Non-Class I QC/QA                                      |                                |
|  | Maximum Specific Gravity of Mixture      | IL-9.5L                        | 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day) | According to Class I QC/QA  | Illinois Modified AASHTO T 209 |
|  |  | IL-19.0L                       | 1 per day  | According to Non-Class I QC/QA                                      |                                |
|  | Density                                  |                                | According to Article 406.16 (b)  | 93% – 97%   | Illinois Modified ASTM D 2950  |
|  |  |                                |  |   |                                |

During production, the ratio of minus 75  $\mu\text{m}$  (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75  $\mu\text{m}$  (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, any mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR

criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

#### Construction Requirements

Placing. The minimum compacted thickness of each lift shall be according to the following table:

| Mixture  | Minimum Compacted Lift Thickness, mm (in.) |
|----------|--|
| IL-9.5L  | 32 (1 1/4)                                 |
| IL-19.0L | 57 (2 1/4)                                 |

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE SUPERPAVE IL-9.5L (Low ESAL), or BITUMINOUS CONCRETE BINDER COURSE SUPERPAVE IL-19.0L (Low ESAL).

80039

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Epoxy Pavement Marking

April 18, 2003

This special provision was developed by the Bureau of Operations to improve the reflectivity and durability of the glass beads applied to epoxy pavement marking. It has been updated to conform to the testing procedures currently used by the Bureau of Materials and Physical Research and has been revised to make minor corrections and to clarify the type of lamp used in the test equipment for accelerated weathering.

This special provision should be included on all projects using epoxy pavement marking.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80041m



## EPOXY PAVEMENT MARKING (BDE)

Effective: January 1, 2001

Revised: August 1, 2003

Revise Article 1095.04(b) of the Standard Specifications to read:

“(b) The Epoxide Value (WPE) of Component A shall be tested according to ASTM D 1652 on a pigment free basis. The WPE shall not vary more than plus or minus 50 units of the qualification samples.”

Revise Article 1095.04(c) of the Standard Specifications to read:

“(c) The Total Amine Value of Component B shall be tested according to ASTM D 2074. The Total Amine Value shall not vary more than plus or minus 50 units of the qualification samples.”

Revise Article 1095.04(g) of the Standard Specifications to read:

“(g) The epoxy pavement marking material, when mixed in the proper mix ratio and applied at 0.35 mm to 0.41 mm (14 to 16 mils) wet film thickness and with the proper saturation of glass spheres, shall exhibit a dry no pick-up time of twenty minutes or less when tested according to ASTM D 711.”

Revise Article 1095.04(m) of the Standard Specifications to read:

“(m) The glass beads meet the requirements of Article 1095.07 and the following:

- (1) The first drop glass beads shall be tested by the standard visual method of large glass spheres adopted by the Department. The beads shall have a silane coating and meet the following sieve requirements.

| Sieve Size  | U.S. Standard Sieve Number | % Passing (by weight) |
|-------------|----------------------------|-----------------------|
| 1.70 mm     | 12                         | 95-100                |
| 1.40 mm     | 14                         | 75-95                 |
| 1.18 mm     | 16                         | 10-47                 |
| 1.00 mm     | 18                         | 0-7                   |
| 850 $\mu$ m | 20                         | 0-5                   |

- (2) The second drop glass beads shall be Type B.”

Revise the second sentence of the first paragraph of Article 1095.04(n) of the Standard Specifications to read:

“Subject the coated panel for 75 hours to accelerated weathering using the light and water exposure apparatus (fluorescent UV – condensation type) as specified in ASTM G 53 (equipped with UVB-313 lamps).”

80041

All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Material Transfer Device

January 12, 2001

This special provision was originally developed by the Bureau of Materials and Physical Research. The revision to this special provision reflects a change in the minimum surge capacity of the material transfer device. This memorandum and special provision replaces the June 24, 1999 memorandum from Eric Harm (by Richard Hahn) and the April 1, 2000 memorandum from William Sunley both of which transmitted a special provision concerning the use of a Material Transfer Device.

The special provision contains three (3) fill in the blank areas which must be determined by the district and are considered project specific requirements. The following guidelines should be considered:

- (1) Type of materials to be placed with the Material Transfer Device (to be determined by the district).  
Example wording: This work shall consist of placing bituminous concrete binder and surface course mixtures according to Section 406 of the Standard Specifications, except that these materials shall be placed using a material transfer device.
- (2) Location where Material Transfer Device will be used on project (to be determined by the district).  
Example wording: The material transfer device shall be used for the placement of all bituminous concrete binder and surface course mixtures placed with a bituminous paver including ramps but excluding shoulders.
- (3) Based on (1) above, the designer must restate which materials are placed with the Material Transfer Device (to be determined by the district). If square yard pay items are placed with the Material Transfer Device, conversion factors must be shown on the plans.  
Example wording: This work will be measured for payment in metric tons (tons) for all bituminous concrete binder and surface course materials placed with a Material Transfer Device.

The operation or transportation of heavy equipment on pavement or structures within contract limits is governed by Article 107.16 of the Standard Specifications and implemented through Construction Memorandum No. 95-39. The special provision contains specific restrictions regarding travel on bridges

and full depth pavements. In addition, the designer shall submit information to the Bureau of Bridges and Structures identifying the structures that will be crossed by the Material Transfer Device. The Bureau of Bridges and Structures will analyze the structures to verify that they have the capacity to safely carry an emptied MTD and will provide the designer with recommendations. The recommendations provided by the Bureau of Bridges and Structures will identify any structure, which due to general deterioration or insufficient load carrying capacity, can not be crossed by an emptied MTD. The plans shall include notice to the Contractor of special requirements and restrictions for structures that cannot be crossed by an emptied MTD. The notice shall indicate to the Contractor that the emptied MTD must be transported over the identified structures on a transport vehicle and that information describing axle loads and axle spacing of the transport vehicle must be provided to the Engineer for review by the Bureau of Bridges and Structures.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the April 27, 2001 letting and for subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 12, 2000.

### **MATERIAL TRANSFER DEVICE (BDE)**

Effective Date: June 15, 1999

Revised Date: March 1, 2001

Description. This work shall consist of placing \_\_\_\_\_ (1) \_\_\_\_\_, except that these materials shall be placed using a material transfer device.

Materials and Equipment. The Material Transfer Device shall have a minimum surge capacity of 13.5 metric tons (15 tons), shall be self-propelled and capable of moving independent of the paver, and shall be equipped with the following:

- (a) Front-Dump Hopper and Conveyor. The conveyor shall provide a positive restraint along the sides of the conveyor to prevent material spillage.
- (b) Paver Hopper Insert. The paver hopper insert shall have a minimum capacity of 12.7 metric tons (14 tons).
- (c) Mixer/Agitator Mechanism. This re-mixing mechanism shall consist of a segmented, anti-segregation, re-mixing auger or two full-length longitudinal paddle mixers designed for the purpose of re-mixing the bituminous material. The longitudinal paddle mixers shall be located in the paver hopper insert.

Construction Requirements. The material transfer device shall be used for the placement of \_\_\_\_\_  
(2) \_\_\_\_\_. The material transfer device speed shall be adjusted to the speed of the paver to maintain a continuous, non-stop paving operation.

The material transfer device will be permitted on partially completed segments of full-depth bituminous concrete pavement if the thickness of binder in place is 250 mm (10 in.) or greater.

Structures. The Material Transfer Device may be allowed to travel over structures under the following conditions:

- (a) Approval will be given by the Engineer.
- (b) The vehicle shall be emptied of bituminous material prior to crossing the structure and shall travel at crawl speed across the structure.
- (c) The tires of the vehicle shall travel on or in close proximity and parallel to the beam and/or girder lines of the structure.

Method of Measurement. This work will be measured for payment in metric tons (tons) for \_\_\_\_\_  
(3) \_\_\_\_\_ materials placed with a material transfer device.

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for MATERIAL TRANSFER DEVICE.

The various bituminous mixtures placed with the material transfer device will be paid for as specified in their respective specifications. The Contractor may choose to use the material transfer device for other applications on this project; however, no additional compensation will be allowed.

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Weight Control Deficiency Deduction

April 19, 2002

This special provision was developed by the Bureau of Construction, Chief Counsel's Office and the Office of Quality. It has been revised.

This special provision should be inserted into all contracts which require the delivery of bituminous, aggregate or other pay items for which the method of measurement for payment is based on weight.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 2, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 19, 2002.

80048m

## WEIGHT CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 2001

Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left( \frac{B - C}{B} \right); \text{ Where } A \leq 1.0; \left( \frac{B - C}{C} \right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor

B = Net weight shown on delivery ticket

C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

$$\text{Adjusted Net Weight} = A \times \text{Delivery Ticket Net Weight}$$

The adjustment factor will be imposed until the cause of the deficient weight is identified and corrected by the Contractor to the satisfaction of the Engineer. If the cause of the deficient weight is not identified and corrected within seven (7) calendar days, the source shall cease delivery of all materials to all contracts containing this Special Provision for which the basis of payment is by weight.

Should the Contractor elect to challenge the results of the independent weight check, the Engineer will continue to document the weight of material for which the adjustment factor would be applied. However, provided the Contractor furnishes the Engineer with written documentation that the source scale has been calibrated within seven (7) calendar days after the date of the independent weight check, adjustments in the weight of material paid for will not be applied unless the scale calibration demonstrates that the source scale was not within the specified Department of Agriculture tolerance.

At the Contractor's option, the vehicle may be weighed on a second independent Department of Agriculture certified scale to verify the accuracy of the scale used for the independent weight check.

80048



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Bituminous Concrete Surface Course

January 10, 2003

This special provision was developed by the Bureau of Materials and Physical Research to provide a uniform basis for plan quantity of bituminous concrete surface course and to allow for adjustment of that quantity based upon the actual unit weight of the mix. It is being revised to account for specialty mix designs, such as stone matrix asphalt (SMA), which only allow one specific coarse aggregate.

Plan quantities for bituminous concrete surface course will still be calculated using a unit weight of 59.8 kg/sq m/25 mm thickness (112.0 lb/sq yd/in. thickness) unless a specialty mix design as described above is specified. For the specialty mix, plan quantity will be based upon the anticipated unit weight determined by the district. The unit weight(s) used must be shown on the plans (add this to the Mixture Design Table).

Once the project is under contract and a mix design developed and approved, the Engineer will calculate the Adjusted Plan Quantity. The Adjusted Plan Quantity becomes the quantity to be placed, subject to the 103% limitation.

This special provision should be inserted into all contracts using bituminous concrete surface courses.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory January 10, 2003.

80050m

## BITUMINOUS CONCRETE SURFACE COURSE (BDE)

Effective: April 1, 2001

Revised: April 1, 2003

Replace the fourth paragraph of Article 406.23(b) of the Standard Specifications with the following:

“Mixture for cracks, joints, flangeways, leveling binder (machine method), leveling binder (hand method) and binder course in excess of 103 percent of the quantity specified by the Engineer will not be measured for payment.

Surface course mixture in excess of 103 percent of adjusted plan quantity will not be measured for payment. The adjusted plan quantity for surface course mixtures will be calculated as follows:

Adjusted Plan Quantity = C x quantity shown on the plans or as specified by the Engineer.

where C =      metric:  $C = \frac{G_{mb} \times 24.99}{U}$       English:  $C = \frac{G_{mb} \times 46.8}{U}$

and where:

$G_{mb}$  = average bulk specific gravity from approved mix design.

$U$  = Unit weight of surface course shown on the plans in kg/sq m/25 mm (lb/sq yd/in.), used to estimate plan quantity.

24.99 = metric constant.

46.8 = English constant.

If project circumstances warrant a new surface course mix design, the above equations shall be used to calculate the adjusted plan quantity for each mix design using its respective average bulk specific gravity.”

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Coarse Aggregate for Trench Backfill, Backfill  
and Bedding

April 18, 2003

This special provision was developed by the Bureau of Construction along with a task force consisting of members from the districts to allow the use of coarse aggregate as bedding, backfill and trench backfill for pipe culverts and storm sewers. It also allows the use of controlled low strength material for backfilling the trenches at the Contractor's option and expense. It revises Sections 208, 542, 550, 1003 and 1004 of the Standard Specifications.

This special provision has been revised to clearly state that trench backfill will be paid for separately.

It should be included on all projects that include backfill and trench backfill for pipe culverts and storm sewers.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the August 1, 2003 letting and for subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80051m

## COARSE AGGREGATE FOR TRENCH BACKFILL, BACKFILL AND BEDDING (BDE)

Effective: April 1, 2001

Revised: August 1, 2003

Revise Article 208.02 of the Standard Specifications to read:

**“208.02 Materials.** Materials shall be according to the following Articles of Section 1000 – Materials:

- (a) Fine Aggregate (Note 1)..... 1003.04
- (b) Coarse Aggregate (Note 2) ..... 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer.”

Revise the first sentence of the second paragraph of subparagraph (b) in Article 208.03 of the Standard Specifications to read:

"Any material meeting the requirements of Articles 1003.04 or 1004.06 which has been excavated from the trenches shall be used for backfilling the trenches."

Add the following to the end of Article 542.02 of the Standard Specifications:

- “(bb) Fine Aggregate (Note 1)..... 1003.04
- (cc) Coarse Aggregate (Note 2) ..... 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer.”

Revise the first and second sentences of the second paragraph of subparagraph (a) of Article 542.04 of the Standard Specifications to read:

"The unstable and unsuitable material shall be removed to a depth determined by the Engineer and for a width of one diameter (or equivalent diameter) of the pipe on each side of the pipe culvert, and replaced with aggregate. Rock shall be removed to an elevation 300 mm (1 ft) lower than the bottom of the pipe or to a depth equal to 40 mm/m (1/2 in./ft) of ultimate fill height over the top of the pipe culvert, whichever is the greater depth, and for a width as specified in (b) below, and replaced with aggregate."

Revise the second paragraph of subparagraph (c) of Article 542.04 of the Standard Specifications to read:

"Well compacted aggregate, at least 100 mm (4 in.) in depth below the pipe culvert, shall be placed the entire width of the trench and for the length of the pipe culvert, except well compacted impervious material shall be used for the outer 1 m (3 ft) at each end of the pipe. When the trench has been widened by the removal and replacement of unstable or unsuitable material, the foundation material shall be placed for a width not less than the above specified widths on each side of the pipe. The aggregate and impervious material shall be approved by the Engineer and shall be compacted to the Engineer's satisfaction by mechanical means."

Revise subparagraph (e) of Article 542.04 of the Standard Specifications to read:

"(e) Backfilling. As soon as the condition of the pipe culvert will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe culvert, except at the outer 1 m (3 ft) at each end of the culvert which shall be backfilled with impervious material. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate and impervious material shall be placed in 200 mm (8 in.) layers, loose measurement. When using PVC, PE, or corrugated metal pipe, the aggregate shall be continued to a height of at least 300 mm (1 ft) above the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means. When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means."

When using PVC, PE, or corrugated metal pipe a minimum of 300 mm (1 ft) of cover from the top of the pipe to the top of the subgrade will be required.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled with select material, from excavation or borrow, free from large or frozen lumps, clods or rock, meeting the approval of the Engineer. The material shall be placed in layers not exceeding 200 mm (8 in.) in depth, loose measurement and compacted to 95 percent of the standard laboratory density. Compaction shall be obtained by use of mechanical tampers or with approved vibratory compactors. Before compacting, each layer shall be wetted or dried to bring the moisture content within the limits of 80 to 110 percent of optimum moisture content determined according to AASHTO T 99 (Method C). All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the culvert. The filling of the trench shall be carried on simultaneously on both sides of the pipe. The Contractor may, at his/her expense, backfill the entire trench with aggregate in lieu

of select material. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means.

The backfill material for all trenches and excavations made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk shall be according to Section 208. The trench backfill material shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When the trench has been widened for the removal and replacement of unstable or unsuitable material, the backfilling with aggregate and impervious material, will be required for a width of at least the specified widths on each side of the pipe. The remaining width of each layer may be backfilled with select material. Each 200 mm (8 in.) layer for the entire trench width shall be completed before beginning the placement of the next layer."

Revise subparagraph (b) of Article 542.05 of the Standard Specifications to read:

"(b) Embankment. Embankment extending to an elevation of 300 mm (1 ft) over the top of the pipe shall be constructed according to Article 542.04(f), except the material up to the elevation of the center of the pipe and extending to a width of at least 450 mm (18 in.) on each side of the pipe, exclusive of the outer 1 m (3 ft) at each end of the pipe, shall consist of aggregate. At the outer 1 m (3 ft) at each end of the culvert, impervious material shall be used."

Add the following paragraph after the first paragraph of Article 542.10 of the Standard Specifications:

"Trench backfill will be measured for payment according to Article 208.03."

Add the following paragraph after the third paragraph of Article 542.11 of the Standard Specifications:

"Trench backfill will be paid for according to Article 208.04."

Add the following to of Article 550.02 of the Standard Specifications:

"(m) Fine Aggregate (Note 2)..... 1003.04

(n) Coarse Aggregate (Note 3) ..... 1004.06

Note 2. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 3. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first two sentences of the third paragraph of Article 550.04 of the Standard Specifications to read:

"Well compacted, aggregate bedding material at least 100 mm (4 in.) in depth below the pipe, shall be placed for the entire width of the trench and length of the pipe. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means."

Revise Article 550.07 of the Standard Specifications to read:

**"550.07 Backfilling.** As soon as the condition of the pipe will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate backfill material shall be placed in 200 mm (8 in.) layers, loose measurement and compacted to the satisfaction of the Engineer by mechanical means. When using PVC pipe, the aggregate shall be continued to a height of at least 300 mm (12 in.) above the top of the pipe.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench and excavation shall be backfilled to the natural line or finished surface as rapidly as the condition of the sewer will permit. The backfill material shall consist of suitable excavated material from the trench or of trench backfill as herein specified. All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the sewer and shall be compacted to the satisfaction of the Engineer by mechanical means. The filling of the trench shall be carried on simultaneously on both sides of the pipe.

The backfill material for trenches and excavation made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk shall be according to Section 208. The backfill material shall be compacted to 85 percent of standard lab density by mechanical means.

All backfill material up to a height of 300 mm (1 ft) above the pipe shall be deposited in uniform layers not exceeding 200 mm (8 in.) thick, loose measurement. The material in each layer shall be compacted to the satisfaction of the Engineer by mechanical means. The

backfilling above this height shall be done according to Method 1, 2 or 3 as described below, with the following exceptions.

When trench backfill or excavated material meeting the requirements of Section 208 is required above the first 300 mm (1 ft) of the pipe, the layers shall not exceed 200 mm (8 in.). Gradations CA6 or CA10 shall not be used with Method 2 or Method 3.

Method 1. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be compacted to the satisfaction of the Engineer by mechanical means.

Method 2. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be either inundated or deposited in water.

Method 3. The trench shall be backfilled with loose material, and settlement secured by introducing water through holes jetted into the backfill to a point approximately 600 mm (2 ft) above the top of the pipe. The holes shall be spaced as directed by the Engineer but shall be no farther than 2 m (6 ft) apart.

The water shall be injected at a pressure just sufficient to sink the holes at a moderate rate of speed. The pressure shall be such that the water will not cut cavities in the backfill material nor overflow the surface. If water does overflow the surface, it shall be drained into the jetted holes by means of shallow trenches.

Water shall be injected as long as it will be absorbed by the backfill material and until samples taken from test holes in the trench show a satisfactory moisture content. The Contractor shall bore the test holes not more than 15 m (50 ft) apart and at such other locations in the trench designated by the Engineer. As soon as the watersoaking has been completed, all holes shall be filled with soil and compacted by ramming with a tool approved by the Engineer.

Backfill material which has been watersoaked shall be allowed to settle and dry for at least 10 days before any surface course or pavement is constructed on it. The length of time may be altered, if deemed desirable, by the Engineer. Where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk, the provisions of this paragraph shall also apply.

At the end of the settling and drying period, the crusted top of the backfill material shall be scarified and, if necessary, sufficient backfill material added, as specified in Method 1, to complete the backfilling operations.

The method used for backfilling and compacting the backfill material shall be the choice of the Contractor. If the method used does not produce results satisfactory to the Engineer, the Contractor will be required to alter or change the method being used so the resultant backfill will be satisfactory to the Engineer. Should the Contractor be required to alter or change the



method being used, no additional compensation will be allowed for altering or changing the method.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfilling material shall be filled in a manner approved by the Engineer.

When the Contractor constructs the trench with sloped or benched sides according to Article 550.04, backfilling for the full width of the excavation shall be as specified, except no additional compensation will be allowed for trench backfill material required outside the vertical limits of the specified trench width.

Whenever excavation is made for installing sewer pipe across earth shoulders or private property, the topsoil disturbed by excavation operations shall be replaced as nearly as possible in its original position, and the whole area involved in the construction operations shall be left in a neat and presentable condition.

When using any PVC pipe, the pipe shall be backfilled with aggregate to 300 mm (1 ft) over the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means.

When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

Deflection Testing for Storm Sewers. All PVC storm sewers will be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted.

For PVC storm sewers with diameters 600 mm (24 in.) or smaller, a mandrel drag shall be used for deflection testing. For PVC storm sewers with diameters over 600 mm (24 in.), deflection measurements other than by a mandrel drag shall be used.

Where the mandrel is used, the mandrel shall be furnished by the Contractor and pulled by hand through the pipeline with a suitable rope or cable connected to each end. Winching or other means of forcing the deflection gauge through the pipeline will not be allowed.

The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris build-up from occurring between the channels of the adjacent fins or legs during operation. Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have 9,

various sized fins or legs of appropriate dimension for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size and percent of deflection allowable.

The outside diameter of the mandrel shall be 95% of the base inside diameter, where the base inside diameter is:

For all PVC pipe (as defined using ASTM D 3034 methodology):

If the pipe is found to have a deflection greater than specified, that pipe section shall be removed, replaced, and retested."

Revise subparagraph (c) of Article 1003.04 of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradation shall be as follows:

|   |                        |
|---|------------------------|
| Backfill, bedding and trench backfill for pipe          |                        |
| culverts and storm sewers .....                         | FA 1, FA 2, FA 6       |
| Porous granular embankment and backfill, french drains, |                        |
| and sand backfill for underdrains .....                 | FA 1, or FA 2 (Note 1) |

Note 1: For FA 1 and FA 2, the percent passing the 75  $\mu\text{m}$  (No. 200) sieve shall be  $2 \pm 2$ ."

Revise the title of Article 1004.06 of the Standard Specifications to read:

**"Coarse Aggregate for Blotter, Embankment, Backfill, Trench Backfill, French Drains, and Bedding."**

Add the following to the end of subparagraph (c) of Article 1004.06 of the Standard Specifications:

|   |                         |
|---|-------------------------|
| "Backfill, bedding, and trench backfill for pipe culverts |                         |
| and storm sewers .....                                    | CA 6, CA 10, and CA 18" |

All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Adjusting Frames and Grates

July 27, 2001

This special provision was developed by the Bureau of Materials and Physical Research and the Illinois Highway Development Council to allow the use of plastic and structural steel adjusting rings. It has been revised to add recycled rubber adjusting rings. It should be inserted into all contracts involving the construction, adjustment and reconstruction of frames and grates of drainage and utility structures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 9, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on July 27, 2001.

80052m

## ADJUSTING FRAMES AND GRATES (BDE)

Effective: August 1, 2001

Revised: November 1, 2001

Add the following to Article 602.02 of the Standard Specifications:

- “(k) High Density Polyethylene (HDPE) Plastic ..... Note 2  
(l) Recycled Rubber..... Note 3

Note 2. HDPE plastic adjusting rings may be used to adjust the frames and grates of drainage and utility structures up to a maximum of 75 mm (3 in.). They shall be installed and sealed underneath the frames according to the manufacturer's specifications.

HDPE plastic adjusting rings shall be manufactured from Class B HDPE plastic, as identified in ASTM D 1248, using the injection molding process. They shall be designed and tested to meet or exceed an HS25 wheel load according to the AASHTO Standard Specifications for Highway Bridges and shall be stabilized against the effects of ultra violet light.

Recycled material may be used. If recycled material is used, only polyethylene and less than two percent polypropylene will be allowed in the reclaim process. All feed stock shall be tested by the manufacturer on a procurement/production batch basis to verify the following property values:

| Physical Property          | Test Standard | Value  |
|----------------------------|---------------|--|
| Melt Flow Index            | ASTM D 1238   | 0.30 to 30.0 g/10 min (0.01 to 1.06 oz/10 min) |
| Specific Gravity           | ASTM D 792    | 0.84 to 0.98                                   |
| Tensile Strength,<br>Yield | ASTM D 638    | 13,800 kPa (2000 psi) minimum                  |

HDPE plastic adjusting rings shall have no void areas, cracks, or tears, and have no effects due to exposure to ultraviolet light. Ripples or sags are limited to less than ten percent of the surface. The actual diameter or length shall not vary more than 3 mm (0.125 in.) from the specified diameter or length. Variations in height are limited to  $\pm 1.6$  mm (0.063 in.) for parts up to 50 mm (2 in.) or  $\pm 3$  mm (0.125 in.) for parts from 50 mm (2 in.) to 75 mm (3 in.). Variations shall not exceed 6 mm (0.25 in.) from flat (dish, bow or convoluting edge) or 3 mm (0.125 in.) for bulges or dips in the surface.

Note 3. Riser rings fabricated from recycled rubber may be used to adjust the frames and grates of drainage and utility structures up to a maximum of 50 mm (2 in.). They shall be installed and sealed underneath the frames according to the manufacturer's specifications.

Recycled rubber products shall consist of no less than 80 percent by weight recycled rubber. The riser shall meet or exceed the following when maintained at  $23 \pm 2^{\circ}\text{C}$  ( $73 \pm 3^{\circ}\text{F}$ ) for at least 24 hours prior to and during testing.

| Physical Property   | Test Standard  | Value   |
|---|--|---|
| Density   | ASTM C 642-90  | $1.10 \pm 0.034 \text{ g/cu cm}$<br>( $68.63 \pm 2.11 \text{ lb/cu ft}$ ) |
| Durometer Hardness  | ASTM D 2240-97 Shore A   | $72 \pm 6^1$  |
| Compression Deformation under 1000 kPa (145 psi)  | ASTM D 575 –Test Method B<br>Test of Specified Force   | $9 \pm 4 \%$  |
| Compression Set   | ASTM D 395 – Illinois Modified<br>Test Method B Compression<br>Set under Constant Deflection<br>in Air | $5 \pm 3 \%^2$  |
| Weathering (70 hrs at $70^{\circ}\text{C}$ ( $158^{\circ}\text{F}$ )) Hardness retained | ASTM D 573   | 98 %, minimum   |
| Freeze/thaw when exposed to deicing chemicals   | ASTM C 672-91  | 3 % loss, maximum   |

<sup>1</sup> Average of three tests over a 28 mm (1.12 in.) diameter sample.

<sup>2</sup> Samples compressed to 75 percent of initial height.

Recycled rubber adjusting rings shall have no void areas, cracks, or tears, and have no effects due to exposure to ultraviolet light. The actual diameter or length shall not vary more than 3 mm (0.125 in.) from the specified diameter or length. Variations in height are limited to  $\pm 1.6 \text{ mm}$  (0.063 in.) for parts up to 50 mm (2 in.)."

Revise Article 603.08 of the Standard Specifications to read:

**“603.08 Adjusting Rings.** As an option to Articles 603.03 through 603.07, the adjustment of frames and grates may be accomplished through the use of adjusting rings that fit on top of the frame. These adjusting rings shall be fabricated as a one-piece assembly from gray iron, ductile iron or structural steel. They shall provide a structural capacity equal to or greater than the existing frame and shall not affect the opening size or surface appearance. The rings shall have a device for positively positioning and fastening the ring to the existing frame to prevent movement under traffic.”

80052

All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Erosion and Sediment Control  
Deficiency Deduction

July 27, 2001

This special provision was developed by the Bureau of Design and Environment and the Bureau of Construction. It has been revised to correct the deduction percentage and to further clarify a "deficiency". It should be inserted into all contracts involving or having the potential to involve erosion and/or sediment control.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 9, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on July 27, 2001.

80055m

## **EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)**

Effective: August 1, 2001

Revised: November 1, 2001

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will direct the Contractor in writing to correct the deficiency. The Contractor shall then correct the deficiency within 24 hours. The deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities.

If the Contractor fails to correct the deficiency(s) within 24 hours, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The time period will begin with the initial written notification to the Contractor and end with the Engineer's acceptance of the corrected work. The per calendar day deduction will be either \$1000.00 or 0.05 percent of the awarded contract value, whichever is greater.

If the Contractor fails to respond, the Engineer may correct the deficiencies and deduct the cost from monies due or which may become due the Contractor. This corrective action shall in no way relieve the Contractor of his/her contractual requirements or responsibilities.

80055



All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Placement of Arrow Boards

April 20, 2001

This special provision was developed by the Bureau of Operations. It should be inserted into all contracts which use traffic control standards or details containing arrow boards.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 3, 2001 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on April 20, 2001.

80056m

## **PLACEMENT OF ARROW BOARDS (BDE)**

Effective: August 1, 2001

Add the following to Article 701.04 of the Standard Specifications:

- “(g) Arrow Boards. Arrow boards shown on standards or in the plans at the beginning of tapers, shall be placed at the beginning of the taper or in the closed lane within the first 90 m (300 ft) of the taper.”

80056

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Bituminous Base Course / Widening  
Superpave

September 27, 2002

This special provision was developed by the Bureau of Materials and Physical Research and the Bureau of Design & Environment to specify the design of Superpave mixtures that are comparable to bituminous base course. It has been revised to set the minimum lift thickness at three times the nominal maximum aggregate size.

This special provision should be inserted into all contracts using Superpave mix designs for bituminous base course and bituminous concrete base course widening and should be used in conjunction with the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures".

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80065m

## **BITUMINOUS BASE COURSE / WIDENING SUPERPAVE (BDE)**

Effective: April 1, 2002

Revised: January 1, 2003

Description. This work shall consist of constructing bituminous base course Superpave and bituminous concrete base course widening Superpave according to Sections 355 and 356 respectively, of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures" except as modified herein.

Revise Article 355.02(d) of the Standard Specifications to read:

"(d) RAP Material (Note3)"

Revise Note 2 of Article 355.02 of the Standard Specifications to read:

"Note 2. Unless otherwise specified on the plans, the bituminous material shall be performance graded (PG) asphalt cement (AC) , PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer. When the pavement has a structural number ( $D_t$ ) of 3.00 or less, the low temperature grade of the asphalt cement shall be lowered one grade (i.e. PG58-28 replaces PG58-22)."

Add the following to the end Article 355.02 of the Standard Specifications:

"Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures"."

Add the following to Article 355.03 of the Standard Specifications:

"(k) Superpave Gyratory Compactor (Note 6)  
(l) Ignition Oven (Note 7)"

Note 6. The Superpave gyratory compactor (SGC) shall be used for all laboratory mixture compaction.

Note 7. The ignition oven shall be used for determination of AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of AC content."

Revise Article 355.05 of the Standard Specifications to read:

**"355.05 Mixture Design.** The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed

the course, "Superpave Mix Design Upgrade". The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

|              |   |
|--------------|---|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design  |
| AASHTO PP 2  | Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)  |
| AASHTO PP 19 | Standard Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)  |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA   |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures  |
| AASHTO T 312 | Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor |
| AASHTO T 308 | Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method                                       |

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

| <u>Ingredient</u>   | <u>Percent by Dry Weight</u> |
|---------------------|------------------------------|
| Aggregate.....      | 93.0 to 96.0                 |
| Asphalt Cement..... | 4.0 to 7.0                   |
| Dust/AC Ratio.....  | 1.4                          |

When RAP material is being used, the JMF shall be according to the following limits:

| <u>Ingredient</u>                 | <u>Percent by Dry Weight</u> |
|-----------------------------------|------------------------------|
| Virgin Aggregate(s).....          | 46.0 to 96.0                 |
| RAP Material(s) (Note 1).....     | 0 to 50                      |
| Mineral Filler (if required)..... | 0 to 5.0                     |
| Asphalt Cement.....               | 4.0 to 7.0                   |
| Dust/AC Ratio.....                | 1.4                          |

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply.

(b) Volumetric Requirements.

| Design Compactive Effort | Design Air Voids Target (%) |
|--------------------------|-----------------------------|
| N <sub>DES</sub> =50     | 2.0                         |

- (c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 355.06 of the Standard Specifications to read:

**"355.06 Mixture Production.** The asphalt cement shall be transferred to the asphalt tanks and heated to a temperature of 120 °C (250 °F) to 175 °C (350 °F). If the loading temperature exceeds 175 °C (350 °F), the asphalt shall not be used until it has cooled to 175 °C (350 °F). Wide variations in temperature which affect the amount of asphalt delivered will not be permitted.

When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 30 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

- (a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".
- (b) Required Tests. Testing shall be conducted to control the production of the bituminous mixture at a frequency not less than that listed for Non-Class I mixtures in the special provision "QC/QA of Bituminous Concrete Mixtures".

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

- (c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures."

Revise Article 355.08 of the Standard Specifications to read:

**"355.08 Placing.** The bituminous mixture shall be placed with a spreading and finishing machine. The minimum compacted thickness of each lift shall be according to the following table:

| Nominal Maximum Aggregate Size of Mixture | Minimum Compacted Lift Thickness |
|---|----------------------------------|
| CA 10 - 19 mm (3/4 in.)                   | 57 mm (2 1/4 in.)                |
| CA 6 – 25 mm (1 in.)                      | 76 mm (3 in.)                    |

The maximum compacted thickness of each lift shall be 100 mm (4 in.). If the Contractor elects to substitute an approved vibratory roller for one of the required rollers, the maximum compacted thickness of the each lift, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

The surface of each lift shall be clean and dry before succeeding lifts are placed."

Revise Article 355.13 of the Standard Specifications to read:

**"355.13 Basis of Payment.** This work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS BASE COURSE SUPERPAVE of the thickness specified."

Revise Article 356.02 of the Standard Specifications to read:

**"356.02 Materials.** The materials for the bituminous concrete mixture shall meet the requirements of Article 355.02, be designed according to Article 355.05 and produced according to Article 355.06. Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply."

Revise the first paragraph of Article 356.06 of the Standard Specifications to read:

**"356.06 Base Course Widening.** The bituminous concrete mixture shall be transported according to Article 406.14."

Revise the second sentence of the fifth paragraph of Article 356.06 of the Standard Specifications to read:

"The minimum compacted thickness of each lift shall be according to the table shown in Article 355.08."

Revise the first paragraph of Article 356.11 of the Standard Specifications to read:

**"356.11 Basis of Payment.** Where the Department requires that bituminous concrete be used, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BASE COURSE WIDENING SUPERPAVE of the thickness specified."



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Bridge Deck Construction

April 19, 2002

This special provision was developed by the Bureau of Materials and Physical Research in response to the recommendations of the 1998 FHWA/IDOT Bridge Deck Construction Process Review. It should be inserted into all conventional bridge deck construction projects. It does not apply to high performance concrete bridge decks.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 2, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 19, 2002.

80066m

## BRIDGE DECK CONSTRUCTION (BDE)

Effective: April 1, 2002

Revised: August 1, 2002

Add the following to Article 503.03 of the Standard Specifications:

“(h) Fogging Equipment .....1103.17(k)”

Add the following after the first sentence of the second paragraph to Article 503.07 of the Standard Specifications:

“When placing Class BD concrete, the discharge end of the pump shall have attached an “S” shaped flexible or rigid conduit, a 90 degree elbow with a minimum of 3 m (10 ft) of flexible conduit placed parallel to the deck, or a similar configuration approved by the Engineer.”

Add the following after the second sentence of the ninth paragraph of Article 503.07 of the Standard Specifications:

“When consolidating concrete in bridge decks, the vibrator shall be vertically inserted into the concrete for 3 - 5 seconds, or for a period of time determined by the Engineer.”

Add the following after the first paragraph of Article 503.17 of the Standard Specifications:

“For the bridge deck pour, fogging equipment shall be in operation unless the evaporation rate is less than 0.5 kg/sq m/hour (0.1 lb/sq ft/hour) and the Engineer gives permission to turn off the equipment. The evaporation rate shall be determined according to the figure in the Portland Cement Association’s publication, “Design and Control of Concrete Mixtures” (refer to the section on plastic shrinkage cracking). The Contractor shall provide temperature, relative humidity, and wind speed measuring equipment.

The fogging equipment shall be adjusted to adequately cover the entire width of the pour.

If there is a delay of more than ten minutes during bridge deck placement, wet burlap shall be used to protect the concrete until operations resume.

Concrete placement operations shall be coordinated to limit the distance between the point of concrete placement and concrete covered with cotton mats for curing. The distance shall not exceed 10.5 m (35 ft). For bridge deck widths greater than 15 m (50 ft), the distance shall not exceed 7.5 m (25 ft).”

Add the following to the end of the first paragraph of Article 503.17(b) of the Standard Specifications to read:

“The concrete in these areas shall be struck off during the deck pour and excess material from the finishing machine shall not be incorporated.”

Revise Article 1020.05(d) of the Standard Specifications to read:

“(d) Class BD Concrete. The maximum mortar factor shall be 0.86.”

In the “Index Table of Curing and Protection of Concrete Construction” of Article 1020.13 of the Standard Specifications, revise the curing method for deck construction to read “Article 1020.13(a)(5)”.

Add the following to Article 1020.13(a) of the Standard Specifications:

“(5) Wetted Cotton Mat Method. After the surface of concrete has been textured, it shall be covered immediately with dry cotton mats meeting the requirements of Article 1022.06. The cotton mats shall then be wetted immediately with a gentle spray of water. A foot bridge shall be used for these operations.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to prevent marring of the surface. Once the concrete has sufficiently hardened, soaker hoses shall be placed on top of the cotton mats and the cotton mats kept continuously wet for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets meeting the requirements of Articles 1022.04 and 1022.05 respectively.

For areas inaccessible to the cotton mats, curing shall be according to Article 1020.13(a)(3).”

Revise Article 1020.13(d)(3) of the Standard Specifications to read:

“(3) Bridge Decks. Bridge decks shall be cured according to Article 1020.13(a)(5) after the surface of the concrete has been textured according to Article 503.17(c)(4)a.

Protective coat shall be applied according to Article 503.19.

Add the following Article to Section 1022 of the Standard Specifications:

“**1022.06 Cotton Mats.** Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability. Cotton mats shall be free from tears and in good condition.”

Add the following after the first paragraph of Article 1103.17(a) of the Standard Specifications:

“For bridge decks with epoxy coated reinforcement, the vibrator shall have a non-metallic head. The head shall be coated by the manufacturer. The hardness of the non-metallic head shall be less than the hardness of, and cause no damage to, the epoxy coating. Slip-on covers will not be allowed.”

Add the following to Article 1103.17 of the Standard Specifications:

“(k) Fogging Equipment. Fogging equipment shall consist of a mechanically operated, pressurized system using a triple headed nozzle or an equivalent nozzle. The fogging nozzle shall be capable of producing a fine fog mist that will increase the relative humidity of the air just above the fresh concrete surface without accumulating any water on the concrete. The fogging equipment shall be mounted on either the finishing machine or a separate foot bridge. Controls shall be designed to vary the volume of water flow, be easily accessible and immediately shut off the water when in the off position. Hand held fogging equipment will not be allowed.”

80066

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Light Emitting Diode (LED) Signal Head

April 18, 2003

This special provision was developed by the Bureau of Operations to provide Statewide requirements for LED signal heads. The material specifications have been revised to reflect developments in LED technology. It should be inserted into all contracts using LED signal heads.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80067m

## LIGHT EMITTING DIODE (LED) SIGNAL HEAD (BDE)

Effective: April 1, 2002

Revised: August 1, 2003

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

“The warranty for light emitting diode (LED) modules, including the maintained minimum luminous intensities, shall cover a minimum of 60 months from the date of delivery.”

Revise Article 880.01 of the Standard Specifications to read:

**“880.01 Description.** This work shall consist of furnishing and installing a conventional signal head, optically programmed signal head or light emitting diode (LED) signal head.”

Revise Article 880.02(a) of the Standard Specifications to read:

“(a) Signal Heads.....1078.01”

Revise the first sentence of the first paragraph of Article 880.03 of the Standard Specifications to read:

“The signal head shall be installed on a post, bracket, span wire or mast arm as shown on the plans.”

Revise the first paragraph of Article 880.04 of the Standard Specifications to read:

**“880.04 Basis of Payment.** This work will be paid for at the contract unit price each for SIGNAL HEAD, OPTICALLY PROGRAMMED SIGNAL HEAD, or SIGNAL HEAD, LED of the type specified and of the material type when specified.”

Revise Article 1078.01 of the Standard Specifications to read:

**“1078.01 Signal Head, Optically Programmed Signal Head and Light Emitting Diode (LED) Signal Head.”**

Add the following to Article 1078.01(c) of the Standard Specifications:

“(3) The LED signal section shall be according to the following:

- a. General Requirements. The LED signal head shall meet the requirements of the Institute of Transportation Engineers (ITE) interim LED purchase specification, “Vehicle Traffic Control Signal Heads, Part 2: LED Vehicle Traffic Signal Modules”, or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology.

- b. Physical and Mechanical Requirements. The power supply for the LED module shall be integrated with the unit.
- c. Photometric Requirements. The candlepower values for yellow 300 mm (12 in.) circular modules shall be equal to the corresponding values for green 300 mm (12 in.) circular modules as listed in Table 1 of Section 4 of the aforementioned ITE specification based on normal use in traffic signal operation over the operating temperature range.

The illuminated portion of the arrow module shall be uniformly and completely dispersed with the LEDs.

- d. Electrical Requirements. When applicable to the particular module type, the LED signal module shall be EPA Energy Star qualified. For yellow 300 mm (12 in.) circular and arrow modules, the wattage requirements shall be as follows:

| Module Type                     | Maximum Watts (W)<br>at 74 °C (165 °F) | Nominal Watts (W)<br>at 25 °C (77 °F) |
|---------------------------------|--|---------------------------------------|
| 300 mm (12 in.) Yellow Circular | 25                                     | 22                                    |
| 300 mm (12 in.) Yellow Arrow    | 12                                     | 10                                    |

The individual LEDs shall be wired such that a catastrophic loss or the failure of one LED will result in the loss of not more than 5 percent of the signal module light output.

- e. Warranty. The LED modules shall be warrantied according to Article 802.03. The maintained minimum intensities for 300 mm (12 in.) arrow modules throughout the warranty period under the operating temperature and voltage range, and at the end of the warranty period shall not be less than the following values:

| Module Type  | Maintained Minimum Intensities<br>(cd/sq m) |
|--------------|---|
| Red Arrow    | 5,000                                       |
| Yellow Arrow | 11,000                                      |
| Green Arrow  | 11,000"                                     |

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Material Allowances

January 11, 2002

This special provision was developed to update and clarify the Department's requirements for material allowances. It should be inserted into all projects.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 26, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail system to the district offices on January 11, 2002.

80068m



## **MATERIAL ALLOWANCES (BDE)**

Effective: December 1, 2001

Revise the sixth paragraph of Article 109.07 of the Standard Specifications to read:

"In addition, payment may be made for materials prior to their use in the work. These material allowances may be paid at the discretion of the Department when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department. Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds \$10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under \$500,000, the minimum \$10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size. Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department."

80068

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Organic Zinc-Rich Paint System

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research in response to the recommendations of the 1999 FHWA/IDOT Bridge Coatings Process Review and has been revised to update standard reference numbers. This special provision should be inserted into all projects requiring an organic zinc-rich paint system.

The districts should include the BDE Check Sheet with the applicable BDE Special Provisions marked for the August 1, 2003 letting and for subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80069m

## ORGANIC ZINC-RICH PAINT SYSTEM (BDE)

Effective: November 1, 2001

Revised: August 1, 2003

Add the following to Section 1008 of the Standard Specifications:

**“1008.26 Organic Zinc-Rich Paint System.** The organic zinc-rich paint system shall consist of an organic zinc-rich primer, an epoxy or urethane intermediate coat, and aliphatic urethane finish coats. It is intended for use over blast-cleaned steel when three-coat shop applications are specified. The system is also suitable for field painting blast-cleaned existing structures.

(a) General Requirements.

- (1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.
- (2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.
- (3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 420 g/L (3.5 lb/gal) as applied.

(b) Test Panel Preparation.

- (1) Substrate and Surface Preparation. Test panels shall be AASHTO M 270M, Grade 250 (M 270 Grade 36), hot-rolled steel measuring 100 mm x 150 mm (4 in. x 6 in.). Panels shall be blast-cleaned per SSPC-SP5 white metal condition using metallic abrasive. The abrasive shall be a 60/40 mix of shot and grit. The shot shall be an SAE shot number S230 and the grit an SAE number G40. Hardness of the shot and grit shall be Rockwell C45. The anchor profile shall be 40-65 microns (1.5-2.5 mils) measured according to ASTM D 4417, Method C.
- (2) Application and Curing. All coatings shall be spray applied at the manufacturer's recommended film thickness. The coated panels shall be cured at least 14 days at  $24\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  ( $75\text{ }^{\circ}\text{F} \pm 2\text{ }^{\circ}\text{F}$ ) and  $50 \pm 5$  percent relative humidity.
- (3) Scribing. The test panels shall be scribed according to ASTM D 1654 with a single “X” mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 50 mm (2 in.) and a height of 100 mm (4 in.). The scribe cut shall expose the steel substrate as verified with a microscope.
- (4) Number of Panels. All testing shall be performed on triplicate panels.

(c) Zinc-Rich Primer Requirements.

- (1) Generic Type. This material shall be an organic zinc-rich epoxy or urethane primer. It shall be suitable for topcoating with epoxies, urethanes, and acrylics.
- (2) Zinc Dust. The zinc dust pigment shall comply with ASTM D 520, Type II.
- (3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325M (A 325) or A 490M (A 490) bolts.
- (4) Salt Fog. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of salt fog exposure when tested according to ASTM B 117 and evaluated according to AASHTO R 31.
- (5) Cyclic Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of cyclic exposure when tested according to ASTM D 5894 and evaluated according to AASHTO R 31.
- (6) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.
- (7) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.
- (8) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24-hour cycle shall consist of 16 hours of approximately  $-30^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$ ) followed by 4 hours of thawing at  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ) and 4 hours tap water immersion at  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ). The test panels shall remain in the freezer on weekends and holidays.

(d) Intermediate Coat Requirements.

- (1) Generic Type. This material shall be an epoxy or urethane. It shall be suitable as an intermediate coat over inorganic and organic zinc primers and compatible with acrylic, epoxy, and polyurethane topcoats.
- (2) Color. The color of the intermediate coat shall be white or off-white.

(e) Urethane Finish Coat Requirements.

- (1) Generic Type. This material shall be an aliphatic urethane. It shall be suitable as a topcoat over epoxies and urethanes.
- (2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The

color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 75 microns (3 mils) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand-Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

The contrast ratio of the finish coat at 75 microns (3 mils) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

- (3) Weathering Resistance. Test panels shall be aluminum alloy measuring 300 mm x 100 mm (12 in. x 4 in.) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 75 microns (3 mils) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 14 days at 24 °C ± 1 °C (75 °F ± 2 °F) and 50 ± 5 percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of 8 hours UV exposure at 60 °C (140 °F) followed by 4 hours of condensation at 40 °C (104 °F). After exposure, rinse the panel with clean water; allow to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(f) Three Coat System Requirements.

- (1) Finish Coat Color. For testing purposes, the color of the finish coat shall match Federal Standard No 595, color chip 14062 (green).
- (2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of salt fog exposure:

| Salt Fog Acceptance Criteria (max) |               |               |                            |
|------------------------------------|---------------|---------------|----------------------------|
| Blister Criteria                   | Rust Criteria |               |                            |
| Size/Frequency                     | Maximum Creep | Average Creep | % Rusting at Scribed Edges |
| #8 Few                             | 4mm           | 1mm           | 1                          |

- (3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of cyclic exposure:

| Cyclic Exposure Acceptance Criteria (max) |               |               |                            |
|---|---------------|---------------|----------------------------|
| Blister Criteria                          | Rust Criteria |               |                            |
| Size/Frequency                            | Maximum Creep | Average Creep | % Rusting at Scribed Edges |
| #8 Few                                    | 2mm           | 1mm           | 1                          |

- (4) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.
- (5) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.
- (6) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -30 °C (-22 °F) followed by 4 hours of thawing at 50 °C (122 °F) and 4 hours tap water immersion at 25 °C (77 °F). The test panels shall remain in the freezer mode on weekends and holidays.
- (g) Qualification Samples and Tests. The manufacturer shall supply, to an independent test laboratory and to the Department, samples of the organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with results of all tests, stating that these materials meet the requirements as set forth herein. The certified test report shall state lots tested, manufacturer's name, product names, and dates of manufacture. New certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing, other than tests conducted by the Department, shall be borne by the manufacturer.
- (h) Acceptance Samples and Certification. A 1 L (1 qt) sample of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be witnessed by a representative of the Illinois Department of Transportation. The organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats shall not be used until tests are completed and they have met the requirements as set forth herein."

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Stabilized Subbase and Bituminous  
Shoulders Superpave

September 27, 2002

This special provision was developed by the Bureau of Materials and Physical Research and the Bureau of Design & Environment to specify the design of a Superpave mixture that is comparable to a bituminous aggregate mixture (BAM). It has been revised to set the minimum lift thickness at three times the nominal maximum aggregate size.

This special provision should be inserted into all contracts using Superpave mix designs for stabilized subbase or bituminous shoulders and should be used in conjunction with the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures".

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80070m

## **STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)**

Effective: April 1, 2002

Revised: January 1, 2003

Description. This work shall consist of constructing stabilized subbase and bituminous shoulders Superpave according to Sections 312 and 482 respectively, of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures" except as modified herein.

Revise Article 312.03(b) of the Standard Specifications to read:

"(b) RAP Material (Note 3)"

Revise Note 2 of Article 312.03 of the Standard Specifications to read:

"Note 2. Gradation CA 6, CA 10, or CA 12 shall be used."

Revise Note 3 of Article 312.03 of the Standard Specifications to read:

"Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures". RAP containing steel slag shall be permitted for use in top-lift surface mixtures only."

Revise Note 4 of Article 312.03 of the Standard Specifications to read:

"Note 4. Unless otherwise specified on the plans, the bituminous material shall be performance graded asphalt cement, PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer."

Add the following to Article 312.04 of the Standard Specifications:

"(k) Superpave Gyratory Compactor (Note 6)

(l) Ignition Oven (Note 7)

Note 6. The Superpave gyratory compactor (SGC) shall be used for all laboratory mixture compaction.

Note 7. The ignition oven shall be used for determination of AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of AC content."

Revise Article 312.06 of the Standard Specifications to read:



**"312.06 Mixture Design.** The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, "Superpave Mix Design Upgrade". The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

|              |   |
|--------------|---|
| AASHTO MP 2  | Standard Specification for Superpave Volumetric Mix Design  |
| AASHTO PP 2  | Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)  |
| AASHTO PP 19 | Standard Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)  |
| AASHTO PP 28 | Standard Practice for Designing Superpave HMA   |
| AASHTO T 209 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures  |
| AASHTO T 312 | Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor |
| AASHTO T 308 | Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method                                       |

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

| <u>Ingredient</u>   | <u>Percent by Dry Weight</u> |
|---------------------|------------------------------|
| Aggregate.....      | 94.0 to 96.0                 |
| Asphalt Cement..... | 4.0 to 6.0*                  |
| Dust/AC Ratio.....  | 1.4                          |

\*Upper limit may be raised for the lower or top lifts if the Contractor elects to use a highly absorptive coarse and/or fine aggregate requiring more than six percent asphalt. The additional asphalt shall be furnished at no cost to the Department.

When RAP material is being used, the JMF shall be according to the following limits:

| <u>Ingredient</u>                 | <u>Percent by Dry Weight</u> |
|-----------------------------------|------------------------------|
| Virgin Aggregate(s).....          | 46.0 to 96.0                 |
| RAP Material(s) (Note 1).....     | 0 to 50                      |
| Mineral Filler (if required)..... | 0 to 5.0                     |
| Asphalt Cement.....               | 4.0 to 7.0                   |
| Dust/AC Ratio.....                | 1.4                          |

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

| Design Compactive Effort | Design Air Voids Target (%) |
|--------------------------|-----------------------------|
| $N_{DES} = 30$           | 2.0                         |

- (c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 312.08 of the Standard Specifications to read:

**"312.08 Mixture Production.** When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 35 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

- (a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".
- (b) Required Tests. Testing for stabilized subbase and bituminous shoulders shall be conducted to control the production of the bituminous mixture at a frequency not less than that listed for Non-Class I mixtures in the special provision "QC/QA of Bituminous Concrete Mixtures".

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

- (c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures."

Replace the first paragraph of Article 312.10 of the Standard Specifications with the following:

**“312.10 Placing and Compacting.** After the subgrade has been compacted and is acceptable to the Engineer, the bituminous aggregate mixture shall be spread upon it with a mechanical spreader. The maximum compacted thickness of each lift shall be 150 mm (6 in.) provided the required density is obtained. The minimum compacted thickness of each lift shall be according to the following table:

| Nominal Maximum Aggregate Size of Mixture | Minimum Compacted Lift Thickness |
|---|----------------------------------|
| CA 12 – 12.5 mm (1/2 in.)                 | 38 mm (1 1/2 in.)                |
| CA 10 - 19 mm (3/4 in.)                   | 57 mm (2 1/4 in.)                |
| CA 6 – 25 mm (1 in.)                      | 76 mm (3 in.)                    |

The surface of each lift shall be clean and dry before succeeding lifts are placed.”

Revise Article 482.02 of the Standard Specifications to read:

**“482.02 Materials.** Materials shall meet the requirements of Article 312.03. For the top lift, the aggregate used shall meet the gradation requirements for a CA 10 or CA 12. Blending of aggregates to meet these gradation requirements will be permitted.”

In the first sentence of the first paragraph of Article 482.04 of the Standard Specifications change “Class I Binder and Surface Course (Type 1 or Type 2)” to “Superpave Binder and Surface Course”.

Revise Article 482.04(c) of the Standard Specifications to read:

“(c) Mixture Production..... 312.08”

Revise Article 482.05 of the Standard Specifications to read:

**“482.05 Composition of Bituminous Aggregate Mixture.** The composition of the mixture shall be according to Article 312.06, except that the amount of bitumen used in the top lift shall be increased up to 0.5 percent more than that required in the lower lifts. For resurfacing projects when the Superpave option is used, the bitumen used in the top lift shall not be increased. Superpave mixtures used on the top lift of such shoulders shall meet the gradation requirements of the special provision “Superpave Bituminous Concrete Mixtures”.

For shoulder and strip construction, the composition of the Superpave binder and surface course shall be the same as that specified for the mainline pavement.”

In the following locations of Section 482 of the Standard Specifications, change “Class I” to “Superpave”:

the second paragraph of Article 482.04

the first sentence of the second paragraph of Article 482.06  
the first sentence of the fourth paragraph of Article 482.06  
the second sentence of the fourth paragraph of Article 482.06  
the first sentence of the third paragraph of Article 482.08(b)

Revise the first paragraph of Article 482.06 of the Standard Specifications to read:

**"482.06 Placing and Compacting.** This work shall be according to Article 312.10. The mechanical spreader for the top lift of shoulders shall meet the requirements of Article 1102.03 when the shoulder width is 3 m (10 ft) or greater."

Revise Article 482.09 of the Standard Specifications to read:

**"482.09 Basis of Payment.** When bituminous shoulders are constructed along the edges of the completed pavement structure, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SHOULDERS SUPERPAVE of the thickness specified. The specified thickness shall be the thickness shown on the plans at the edge of the pavement.

On pavement and shoulder resurfacing projects, the shoulder resurfacing will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS SHOULDERS SUPERPAVE.

The construction of shoulder strips for resurfacing pavements will be paid according to the special provision, "Superpave Bituminous Concrete Mixtures".

80070

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Working Days

January 11, 2002

This special provision was developed by the Bureau of Design & Environment as a result of changes to the letting proposal.

It should be inserted into all working day contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 26, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 11, 2002.

80071m

**WORKING DAYS (BDE)**

Effective: January 1, 2002

The Contractor shall complete the work within                      working days.

80071

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Furnished Excavation

April 19, 2002

This special provision was developed by the Bureau of Design & Environment to clarify the method of measurement for furnished excavation. This special provision should be inserted into all contracts using furnished excavation.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 2, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 19, 2002.

80072m



## **FURNISHED EXCAVATION (BDE)**

Effective: August 1, 2002

Revise Article 204.07(b) of the Standard Specifications to read:

- (b) Measured Quantities. Furnished excavation will be computed for payment in cubic meters (cubic yards) as follows:

$$\text{Furnished Excavation} = \text{Embankment} - [\text{Suitable Excavation} \times (1 - \text{Shrinkage Factor})]$$

Where:

Embankment = the volume of fill in its final position computed by the method of average end areas and based upon the existing ground line as shown on the plans except as noted in (1) and (2) below;

Suitable Excavation = earth excavation, rock excavation and other on-site excavation suitable for use in embankments; the volume of other on-site suitable excavation, whether paid for separately or included in the cost of the various items of work, will be computed by the method of average end areas;

Shrinkage Factor = 0.25 unless otherwise shown on the plans.

- (1) If the Contractor so requests, the Engineer will reestablish the existing ground line after the clearing and tree removal have been performed according to Section 201 and the top 150 mm (6 in.) of the existing ground surface has been disked and compacted to the satisfaction of the Engineer.
- (2) If settlement platforms are erected, the Engineer will reestablish the existing ground line after the embankment is complete as specified in Article 204.07(a)(2).

Furnished excavation placed in excess of that required for the execution of the contract will not be measured for payment.

80072

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Polymer Modified Emulsified Asphalt

July 26, 2002

This special provision was developed by the Bureau of Materials and Physical Research (BMPR). It describes a polymer modified, slow setting, asphalt emulsion for use as either a light fog / tack coat between lifts of bituminous concrete or as a prime coat on brick, concrete or bituminous bases.

It should be inserted into all Extended Life Bituminous Concrete Pavement (Full-Depth) Superpave contracts or into other projects as recommended by the BMPR.

This special provision only adds the material to the Standard Specifications; therefore, if its use is required the designer must state so in the contract.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80073m

## **POLYMER MODIFIED EMULSIFIED ASPHALT (BDE)**

Effective: November 1, 2002

Add the following to Article 1009.07 of the Standard Specifications: (insert it before the table on page 853 which begins, "The different grades are, in general, used for the following:")

"(f) Polymer Modified Emulsified Asphalt. Polymer modified emulsified asphalts shall be either anionic (SS-1hP) or cationic (CSS-1hP). They shall meet the SS-1h requirements of Article 1009.07(a) or the CSS-1h requirements of Article 1009.07(b) respectively, with the following exceptions for both types:

- (1) The emulsified asphalt shall be modified with a styrene-butadiene diblock or triblock copolymer, or a styrene butadiene rubber.
- (2) The cement mixing and ductility tests will be waived.
- (3) Upon examination of the storage stability test cylinder after standing undisturbed for 24 hours, the surface shall show no white, milky colored substance and shall be a homogeneous brown color throughout.
- (4) The distillation for polymer modified emulsion shall be performed according to AASHTO T 59 except the temperature shall be  $190 \pm 5^{\circ}\text{C}$  ( $374 \pm 9^{\circ}\text{F}$ ) and measured using an ASTM 16C (16F) thermometer.
- (5) The residue from distillation shall have a minimum elastic recovery value of 30 percent when tested according to AASHTO T 301. The specified temperature shall be  $4.0 \pm 0.5^{\circ}\text{C}$  ( $39.2 \pm 1.0^{\circ}\text{F}$ )."

Add the following grades "for tack or fog seal" to the table at the end of Article 1009.07 of the Standard Specifications which begins, "The different grades are, in general, used for the following:"

"SS-1hP, CSS-1hP"

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Shoulder Inlets with Curb

April 19, 2002

This special provision was developed by District 8 and the Bureau of Design & Environment to include the portland cement concrete slab in the cost of the inlet box. This special provision should be inserted into all contracts using shoulder inlets with curb.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 2, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 19, 2002.

80074m

## **SHOULDER INLETS WITH CURB (BDE)**

Effective: August 1, 2002

Revise the fifth paragraph of Article 610.09 of the Standard Specifications to read:

“The portland cement concrete slab will not be paid for separately but shall be considered as included in the cost of the inlet box.”

80074

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Surface Testing of Pavements

April 18, 2003

This special provision was developed by the Bureau of Materials & Physical Research as part of the Illinois Smoothness Initiative (ISI). It requires a 0.0 mm (0.00 in.) blanking band be used for the profilograph measurements and includes incentives and/or disincentives based on the smoothness of the pavement. This special provision has been revised to address discrepancies in filter settings of the California profilograph and the title has been revised to remove the emphasis on interstate pavements.

It should be inserted into all interstate contracts, and other non-interstate contracts as selected by the districts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80075m

## SURFACE TESTING OF PAVEMENTS (BDE)

Effective: April 1, 2002

Revised: August 1, 2003

### Bituminous Concrete Overlays

Revise Article 406.03(k) of the Standard Specifications to read:

“(k) Pavement Surface Test Equipment .....1101.10”

Revise Article 406.21 of the Standard Specifications to read:

**“406.21 Surface Tests.** The finished surface of the pavement shall be tested for smoothness within 24 hours and before the pavement is opened to traffic. All objects and debris shall be removed from the pavement surface prior to testing. Testing shall be performed in the presence of the Engineer.

(a) Test Sections/Equipment.

- (1) High-Speed Mainline Pavement. High-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed greater than 75 km/hr (45 mph). These sections shall be tested using a California Profilograph or an approved equivalent.
- (2) Low-Speed Mainline Pavement. Low-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed of 75 km/hr (45 mph) or less. These sections shall be tested using a California Profilograph or an approved equivalent.
- (3) Miscellaneous Pavement. Miscellaneous pavement shall consist of:
  - a. pavement on horizontal curves with a centerline radius of curvature of less than or equal to 300 m (1000 ft) and pavement within the superelevation transition of such curves;
  - b. the first or last 4.5 m (15 ft) of a pavement section where the Contractor is not responsible for the adjoining surface;
  - c. intersections;
  - d. variable width pavements;
  - e. side street returns;
  - f. crossovers;

- g. connector pavement from mainline pavement expansion joint to the bridge approach pavement;
- h. bridge approach pavement; and
- i. other miscellaneous pavement surfaces (i.e. a turn lane) as determined by the Engineer.

Miscellaneous pavement shall be tested using a 5 m (16 ft) straightedge set to a 10 mm (3/8 in.) tolerance.

(b) Lots/Sublots. Mainline pavement test sections will be divided into lots and sublots.

(1) Lots. A lot will be defined as a continuous strip of pavement 1600 m (1 mile) long and one lane wide. When the length of a continuous strip of pavement is less than 1600 m (1 mile), that pavement will be included in an adjacent lot. Structures will be omitted when measuring pavement length.

(2) Sublots. Lots will be divided into 160 m (0.1 mile) sublots. A partial subplot resulting from an interruption in the pavement will be subject to the same evaluation as a whole subplot.

(c) Testing Procedure. One wheel track shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to the edge of the lane away from traffic. A guide shall be used to maintain the proper distance.

The profile trace generated shall have stationing indicated every 150 m (500 ft) at a minimum. Both ends of the profile trace shall be labeled with the following information: contract number, beginning and ending stationing, which direction is up on the trace, which direction the profilograph was pushed, and the profilograph operator name(s). The top portion of the Department supplied form, "Profilograph Report of Pavement Smoothness" shall be completed and secured around the trace roll.

Although surface testing of intermediate lifts will not be required, they may be performed at the Contractor's option. When this option is chosen, the testing shall be performed and the profile traces shall be generated as described above.

The Engineer may perform his/her own testing at any time for monitoring and comparison purposes.

(d) Trace Reduction and Bump Locating Procedure. All traces shall be reduced. Traces produced by a mechanical recorder shall be reduced using an electronic scanner and computer software. This software shall calculate the profile index of each subplot in mm/km (in./mile) and indicate any high points (bumps) in excess of 8 mm (0.30 in.) with a line intersecting the profile on the printout. Computerized recorders shall provide the same information.



The profile index of each track, average profile index of each subplot, average profile index of the lot and locations of bumps shall be recorded on the form.

All traces and reports shall be provided to the Engineer for the project file.

The Engineer will use the results of the testing to evaluate paving methods and equipment. If the average profile index of a lot exceeds 635 mm/km (40.0 in./mile) for high-speed mainline pavement or 1025 mm/km (65.0 in./mile) for low-speed mainline pavement, the paving operation will be suspended until corrective action is taken by the Contractor.

- (e) Corrective Work. All bumps in excess of 8 mm (0.30 in.) in a length of 8 m (25 ft) or less shall be corrected. If the bump is greater than 13 mm (0.50 in.), the pavement shall be removed and replaced to the satisfaction of the Engineer at the Contractor's expense. The minimum length of pavement to be removed shall be 900 mm (3 ft).
- (1) High-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 475 (30.0) to 635 (40.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace. Any subplot having a profile index greater than 635 mm/km (40.0 in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace, or replaced at the Contractor's option.
- (2) Low-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 710 (45.0) to 1025 (65.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace. Any subplot having a profile index greater than 1025 mm/km (65.0 in./mile) including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace, or replaced at the Contractor's option.
- (3) Miscellaneous Pavement. Surface variations which exceed the 10 mm (3/8 in.) tolerance will be marked by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed using either an approved grinding device consisting of multiple saws or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area squared normal to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the profilograph tracing(s) and the completed form(s) to the Engineer within two working days after corrections are made. If the profile index and/or bumps still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at the Contractor's expense.

- (f) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of mainline pavement, per the Smoothness Assessment Schedule. Assessments will be based on the average profile index of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the subplot. For sublots that are replaced, assessments will be based on the profile index determined after replacement.

Assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.

| SMOOTHNESS ASSESSMENT SCHEDULE (Bituminous Concrete Overlays)             |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  |  | +\$300.00                 |
| >95 (6.0) to 160 (10.0)   | 240 (15.0) or less   | +\$250.00                 |
| >160 (10.0) to 240 (15.0)   |  | +\$200.00                 |
|   | >240 (15.0) to 400 (25.0)  | +\$150.00                 |
| >240 (15.0) to 285 (18.0)   |  | +\$100.00                 |
| >285 (18.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$300.00                 |

Smoothness assessments will not be applied to miscellaneous pavement sections.”

### **Bituminous Concrete Pavement (Full-Depth)**

Revise Article 407.09 of the Standard Specifications to read:

**“407.09 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.”

| SMOOTHNESS ASSESSMENT SCHEDULE (Full-Depth Bituminous)                    |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  |  | +\$800.00                 |
| >95 (6.0) to 160 (10.0)   | 240 (15.0) or less   | +\$650.00                 |
| >160 (10.0) to 240 (15.0)   |  | +\$500.00                 |
|   | >240 (15.0) to 400 (25.0)  | +\$350.00                 |
| >240 (15.0) to 285 (18.0)   |  | +\$250.00                 |
| >285 (18.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$500.00                 |

Delete the fourth paragraph of Article 407.13 of the Standard Specifications.

### **Portland Cement Concrete Pavement**

Revise Article 420.12 of the Standard Specifications to read:

**“420.12 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at the Contractor's expense.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.21 at the Contractor's expense.”

For pavement that is corrected by removal and replacement, the minimum length to be removed shall meet the requirements of either Class A or Class B patching.

| SMOOTHNESS ASSESSMENT SCHEDULE (PCC)                                      |  |                           |
|---|--|---------------------------|
| High-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Low-Speed Mainline Pavement<br>Average Profile Index<br>mm/km (in./mile) | Assessment<br>per subplot |
| 95 (6.0) or less  |  | +\$1200.00                |
| >95 (6.0) to 160 (10.0)   | 240 (15.0) or less   | +\$1000.00                |
| >160 (10.0) to 240 (15.0)   |  | +\$750.00                 |
|   | >240 (15.0) to 400 (25.0)  | +\$500.00                 |
| >240 (15.0) to 285 (18.0)   |  | +\$370.00                 |
| >285 (18.0) to 475 (30.0)   | >400 (25.0) to 710 (45.0)  | +\$0.00                   |
| >475 (30.0) to 635 (40.0)   | >710 (45.0) to 1025 (65.0)   | +\$0.00                   |
| Greater than 635 (40.0)   | Greater than 1025 (65.0)   | -\$750.00                 |

Delete the sixth paragraph of Article 420.23 of the Standard Specifications.

## Testing Equipment

Revise Article 1101.10 of the Standard Specifications to read:

**“1101.10 Pavement Surface Test Equipment.** Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor.

- (a) 5 m (16 ft) Straightedge. The 5 m (16 ft) straightedge shall consist of a metal I-beam mounted between two wheels spaced 5 m (16 ft) between the axles. Scratcher bolts which can be easily and accurately adjusted, shall be set at the 1/4, 1/2, and 3/4 points between the axles. A handle suitable for pushing and guiding shall be attached to the straightedge. The straightedge shall meet the approval of the Engineer.
- (b) California Profilograph. The California Profilograph or approved equivalent shall consist of a frame 8 m (25 ft) in length supported upon multiple wheels at either end. The profile shall be recorded from the vertical movement of a wheel attached to the frame at mid point. All traces from pavement sections tested with a California Profilograph or approved equivalent shall be recorded on paper with scales of 300:1 longitudinally and 1:1 vertically. Data filters for an automated California Profilograph shall be set according to the parameters outlined in California Test 526, except the blanking band shall be set to 0.0 mm (0.00 in.).
- (1) Calibration. The Contractor shall demonstrate to the Engineer that the testing equipment has proper tire pressure inflation, trueness of tire travel, and is calibrated for vertical displacement and horizontal distance. This calibration shall consist of the following:

- a. A 150 to 300 m (500 to 1000 ft) long calibration test section shall be located on the project. This test section should be relatively straight and flat. The profilograph shall be calibrated for longitudinal distance on this test section to the satisfaction of the Engineer.
- b. Longitudinal calibration consists of pushing, at walking speed (approximately 5 km/hr (3 mph)), the profilograph over the pre-measured test section and determining the chart scale factor. To calculate the chart scale factor, divide the pre-measured test distance, in millimeters (inches), by the length of the profile trace from this test section, in millimeters (inches). This factor should be  $300 \pm 0.5$ . If the profilograph produces charts with a different scale factor, adjustment of the profilograph shall be made to bring the scale factor to the tolerance specified above.
- c. Vertical calibration consists of placing the center recording wheel of the profilograph on a base plate and recording the base elevation. Two plates, 13 mm (0.5 in.) thick each, are added under the center wheel, one at a time, and the change in elevation noted. The two plates are removed, one at a time, and the change in elevation noted. Each step in the process shall show a change in height of  $13 \text{ mm} \pm 1.0 \text{ mm}$  ( $0.5 \pm 0.01 \text{ in.}$ ). If the profilograph produces results not conforming to the above limits, it shall be adjusted to the tolerance specified.
- d. The automatic trace reduction capability of a machine so equipped shall be checked by comparing the machine's results to the results obtained through manual trace reduction using California Test 526 with a 0.0 mm (0.00 in.) blanking band. The comparison shall be made with the trace obtained on the pre-measured test section. The results of the comparison shall not differ by more than 30 mm/km (2.0 in./mile).
- e. All calibration traces and calculations shall be submitted to the Engineer for the project file.

The Engineer may retest the pavement at any time to verify the accuracy of the equipment.

- (2) Trace Analysis. The Contractor shall reduce/evaluate these traces using a 0.0 mm (0.00 in.) blanking band and determine a profile index in mm/km (in./mile) for each section of finished pavement surface. If the Contractor's profilograph is equipped with a computerized recorder, the trace produced will be evaluated without further reduction. If the profilograph has a mechanical recorder, the Contractor shall provide an electronic scanner, a computer, and software to reduce the trace. All analysis equipment (electronic scanner, computerized recorder, etc.) shall be able to accept 0.0 mm (0.00 in.) for the blanking band."

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Allowable Lane Differential

July 26, 2002

This special provision was developed by the Bureau of Materials & Physical Research due to our interstate resurfacing policy change. It increases the maximum allowable differential in elevation between adjacent open traffic lanes to 57 mm (2 1/4 in.). It should be inserted into all interstate resurfacing contracts and other contracts using a binder lift thickness of 57 mm (2 1/4 in.).

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80076m

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Chair Supports

September 27, 2002

This special provision was developed by the Bureau of Materials and Physical Research to eliminate the use of plastic chair supports for continuously reinforced pavements. It has been revised to remove the reference to epoxy coating of steel chairs. It should be inserted into all contracts requiring continuously reinforced pavements.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80077m

## **CHAIR SUPPORTS (BDE)**

Effective: November 1, 2002

Revised: November 2, 2002

Revise the fourth and fifth paragraphs of Article 421.06(a) to read:

“Pavement reinforcement shall be supported on steel chair supports at the depth below the pavement surface as indicated on the plans. The Contractor shall submit prints of shop drawings showing details of chair supports and their spacing to the Engineer and obtain the Engineer’s approval before any fabrication is begun.

The chair supports shall possess the necessary rigidity and be spaced at intervals close enough to hold the reinforcement at the proper depth and position. However, the spacing of the chair supports shall not exceed 900 mm (3 ft) transversely or 1.2 m (4 ft) longitudinally. The chair supports shall be fabricated with sand plates.”

80077



## **ALLOWABLE LANE DIFFERENTIAL (BDE)**

Effective: July 1, 2002

Revise the first sentence of the third paragraph of Article 701.04(b)(1) of the Standard Specifications to read:

“The maximum allowable differential in elevation between adjacent open traffic lanes shall be 57 mm (2 1/4 in.).”

80076

All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Controlled Aggregate Mixing System

July 26, 2002

This special provision was developed by the Bureau of Materials and Physical Research. It should be inserted into all projects requiring Type A granular material for subbase, base course or shoulders.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80078m

## **CONTROLLED AGGREGATE MIXING SYSTEM (BDE)**

Effective: November 1, 2002

Revise the fourth sentence of the first paragraph of Article 311.05(b) of the Standard Specifications to read:

“The water and granular material shall be mixed through a controlled aggregate mixing system. The system shall consist of a mechanical mixing device and aggregate and water measuring devices, meeting the approval of the Engineer.”

Revise the third and fourth sentences of the fourth paragraph of Article 351.05(b) of the Standard Specifications to read:

“The water and aggregate shall be mixed through a controlled aggregate mixing system. The system shall consist of a mechanical mixing device and aggregate and water measuring devices, meeting the approval of the Engineer.”

Delete the third sentence of the first paragraph of Article 351.05(c) of the Standard Specifications.

Revise the second and third sentences of the first paragraph of Article 481.04(a) of the Standard Specifications to read:

“The water and aggregate shall be mixed through a controlled aggregate mixing system. The system shall consist of a mechanical mixing device and aggregate and water measuring devices, meeting the approval of the Engineer.”

80078

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Freeze-Thaw Rating

July 26, 2002

This special provision was developed by the Bureau of Materials and Physical Research to restrict D-cracking susceptible aggregate for pavement appurtenances. It should be inserted into all contracts involving the construction or repair of pcc driveways, sidewalks, gutter, curb, median or paved ditch.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80079m

## **FREEZE-THAW RATING (BDE)**

Effective: November 1, 2002

Revise the first sentence of Article 1004.02(f) of the Standard Specifications to read:

“When coarse aggregate is used to produce portland cement concrete for base course, base course widening, pavement, driveway pavement, sidewalk, shoulders, curb, gutter, combination curb and gutter, median, paved ditch or their repair using concrete, the gradation permitted will be determined from the results of the Department’s Freeze-Thaw Test.”

80079

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Insertion Lining of Pipe Culverts

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research as the result of discussions by the Implementation Sections of the Central Bureaus and Districts. The consensus was that the entire annular space between the existing culvert and liner pipe should be filled for all liner installations. It has been revised to require a grout mixture in lieu of controlled low strength material to fill the annular space between the liner in the existing culvert.

This special provision should be inserted into all contracts involving insertion lining of pipe culverts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80080m

## INSERTION LINING OF PIPE CULVERTS (BDE)

Effective: November 1, 2002

Revised: August 1, 2003

Revise Section 543 of the Standard Specifications to read:

### “SECTION 543. INSERTION LINING OF PIPE CULVERTS

**543.01 Description.** This work shall consist of insertion lining of existing pipe culverts with liner pipes and the grouting of the annular space between the existing culvert and the liner pipe.

**543.02 Materials.** Materials shall meet the requirements of the following Articles of Section 1000 - Materials:

| Item  | Article/Section |
|---|-----------------|
| (a) Polyethylene (PE) Plastic Pipe (Note 1).....        | 1040.16         |
| (b) Polyethylene (PE) Profile Wall Pipe (Note 1) .....  | 1040.18         |
| (c) Reinforced Plastic Mortar (RPM) Pipe (Note 1) ..... | 1040.17         |
| (d) Nonshrink Grout .....                               | 1024.01         |
| (e) Corrugated PVC with Smooth Interior (Note 1).....   | 1040.15         |
| (f) Grout Mixture (Note 2)                              |                 |

Note 1. Insertion linings are specified to minimum allowable inside diameters. Any of the listed pipe materials are permitted if the inside diameter requirement is met.

Note 2. The grout mixture shall be 385 kg/cu m (6.50 hundredweight/cu yd) of portland cement plus fine aggregate and water. Fly ash may replace a maximum of 310 kg/cu m (5.25 hundredweight/cu yd) of the portland cement. The water/cement ratio shall not exceed 0.60. An air-entraining admixture shall be used to produce an air content of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The Contractor shall have the option to use a water-reducing or high range water-reducing admixture.

| Nominal Size<br>mm | PE-F-714 |       | RPM-D3262 |       | ProfileWall-F894 |       | PVC-F949 |       |
|--------------------|----------|-------|-----------|-------|------------------|-------|----------|-------|
|                    | I. D.    | O. D. | I. D.     | O. D. | I. D.            | O. D. | I. D.    | O. D. |
| 250                |          |       |           |       | 250              | 284.5 | 250.1    | 273.9 |
| 300                | 302.8    | 323.9 |           |       | 300              | 342.1 | 297.6    | 325.0 |
| 325                | 317.5    | 339.9 |           |       |                  |       |          |       |
| 350                | 332.5    | 355.6 |           |       |                  |       |          |       |
| 375                |          |       |           |       | 375              | 428.0 | 364.2    | 397.7 |
| 400                | 380      | 406.4 |           |       |                  |       |          |       |
| 450                | 426.7    | 457.2 | 457.2     | 495.3 | 450              | 514.1 | 445.8    | 486.5 |
| 500                | 474.2    | 508.0 | 508.0     | 548.6 |                  |       |          |       |
| 525                |          |       |           |       | 525              | 600.7 | 525.9    | 573.7 |
| 550                | 521.7    | 558.8 |           |       |                  |       |          |       |
| 600                | 569.0    | 609.6 | 609.6     | 655.3 | 600              | 687.3 | 596.1    | 649.7 |

| Nominal Size<br>mm | PE-F-714 |        | RPM-D3262 |        | ProfileWall-F894 |        | PVC-F949 |       |
|--------------------|----------|--------|-----------|--------|------------------|--------|----------|-------|
|                    | I. D.    | O. D.  | I. D.     | O. D.  | I. D.            | O. D.  | I. D.    | O. D. |
| 675                |          |        |           |        | 675              | 772.9  | 671.6    | 733.0 |
| 700                | 664.0    | 711.2  |           |        |                  |        |          |       |
| 750                |          |        | 762.0     | 812.8  | 750              | 859.0  | 748.5    | 816.6 |
| 800                | 749.3    | 802.4  |           |        |                  |        |          |       |
| 900                | 853.7    | 914.4  | 914.4     | 922.8  | 900              | 1032.5 | 901.1    | 984.0 |
| 1000               | 936.0    | 1002.5 |           |        | 1000             | 1148.1 |          |       |
| 1050               | 995.9    | 1066.8 | 1066.8    | 1130.3 | 1050             | 1205.7 |          |       |
| 1200               | 1123.7   | 1203.5 | 1219.2    | 1290.3 | 1219.2           | 1365.5 |          |       |
| 1350               |          |        | 1371.6    | 1450.3 | 1371.6           | 1536.2 |          |       |
| 1375               | 1311.4   | 1404.6 |           |        |                  |        |          |       |
| 1500               |          |        | 1524.0    | 1597.7 | 1524.0           | 1706.9 |          |       |
| 1600               | 1499.1   | 1605.5 |           |        |                  |        |          |       |
| 1650               |          |        | 1676.4    | 1757.7 | 1676.4           | 1877.6 |          |       |
| 1800               |          |        | 1828.8    | 1915.2 | 1828.8           | 2048.2 |          |       |
| 1950               |          |        | 1981.2    | 2072.6 | 1981.2           | 2218.9 |          |       |
| 2100               |          |        | 2133.6    | 2235.2 | 2133.6           | 2389.6 |          |       |
| 2250               |          |        | 2286.0    | 2395.2 | 2286.0           | 2560.3 |          |       |
| 2400               |          |        | 2438.4    | 2555.2 | 2438.4           | 2731.0 |          |       |

| Nominal Size<br>in. | PE-F714 |       | RPM-D3262 |       | Profile Wall-F894 |        | PVC-F949 |       |
|---------------------|---------|-------|-----------|-------|-------------------|--------|----------|-------|
|                     | I. D.   | O. D. | I. D.     | O. D. | I. D.             | O. D.  | I. D.    | O. D. |
| 10                  |         |       |           |       | 10                | 11.2   | 9.8      | 10.8  |
| 12                  | 11.92   | 12.75 |           |       | 12                | 13.47  | 11.7     | 12.8  |
| 13                  | 12.50   | 13.38 |           |       |                   |        |          |       |
| 14                  | 13.09   | 14    |           |       |                   |        |          |       |
| 15                  |         |       |           |       | 15                | 16.85  | 14.3     | 15.7  |
| 16                  | 14.96   | 16    |           |       |                   |        |          |       |
| 18                  | 16.80   | 18    | 18        | 19.5  | 18                | 20.24  | 17.6     | 19.2  |
| 20                  | 18.67   | 20    | 20        | 21.6  |                   |        |          |       |
| 21                  |         |       |           |       | 21                | 23.65  | 20.07    | 22.6  |
| 22                  | 20.54   | 22    |           |       |                   |        |          |       |
| 24                  | 22.40   | 24    | 24        | 25.8  | 24                | 27.06  | 23.5     | 25.6  |
| 27                  |         |       |           |       | 27                | 30.43  | 26.4     | 28.9  |
| 28                  | 26.14   | 28    |           |       |                   |        |          |       |
| 30                  |         |       | 30        | 32.0  | 30                | 33.82  | 29.5     | 32.1  |
| 32                  | 29.5    | 31.59 |           |       |                   |        |          |       |
| 36                  | 33.61   | 36    | 36        | 38.3  | 36                | 40.65  | 35.5     | 38.7  |
| 40                  | 36.85   | 39.47 |           |       | 40                | 45.20  |          |       |
| 42                  | 39.21   | 42    | 42        | 44.5  | 42                | 47.47  |          |       |
| 48                  | 44.24   | 47.38 | 48        | 50.8  | 48                | 53.76  |          |       |
| 54                  |         |       | 54        | 57.1  | 54                | 60.48  |          |       |
| 55                  | 51.63   | 55.3  |           |       |                   |        |          |       |
| 60                  |         |       | 60        | 62.9  | 60                | 67.20  |          |       |
| 63                  | 59.02   | 63.21 |           |       |                   |        |          |       |
| 66                  |         |       | 66        | 69.2  | 66                | 73.92  |          |       |
| 72                  |         |       | 72        | 75.4  | 72                | 80.64  |          |       |
| 78                  |         |       | 78        | 81.6  | 78                | 87.36  |          |       |
| 84                  |         |       | 84        | 88.0  | 84                | 94.08  |          |       |
| 90                  |         |       | 90        | 94.3  | 90                | 100.80 |          |       |
| 96                  |         |       | 96        | 100.6 | 96                | 107.52 |          |       |



## CONSTRUCTION REQUIREMENTS

**543.03 General.** Prior to installing the insertion lining, the existing culvert shall receive a complete cleaning to remove all debris, sediment or other deleterious materials.

PE plastic pipe shall be joined into a continuous length by the butt fusion method according to ASTM D 2657 or by an approved screw-on or push-on joint. PE profile wall pipe shall be joined by heat fusion, extrusion, welding, screw-on or other approved connections. RPM pipe or corrugated PVC with smooth interior shall be joined according to the manufacturer's recommendations using joint lubricant. The joining may be accomplished in a jacking pit or other convenient location where the assembled liner can be brought into alignment with the existing culvert bore without damage. The Engineer shall approve each joint before each section of liner pipe is inserted.

The insertion may be made by pushing or pulling the assembled liner pipe from either end of the culvert. The insertion operation shall not cause the joints to separate in any way. The Engineer may require the liner to have a temporary nose cone or plug to guide the liner pipe past minor obstructions. The handling of plastic liner pipe shall be such that the pipe is not damaged. Pipe with deep scratches or gouges shall be removed and replaced by the Contractor at his/her own expense.

After the liner pipe has been completely inserted and has been inspected in place by the Engineer, it shall be cut off flush with the ends of the existing culvert or as otherwise directed by the Engineer. Liner pipe shall be allowed to cool to the temperature of the existing culvert before it is cut off. The entire length of the annular space between the existing culvert and the liner pipe shall be filled with a grout mixture.

Prior to filling the annular space, the upstream and downstream ends of the annular space between the existing culvert and the liner pipe shall have a cement mortar mixture grout stop. The mixture shall be one part cement and two parts sand. The grout stop shall be no closer than 150 mm (6 in.) from the end. Holes shall be required at the grout stop to allow air to escape when pumping grout and to allow verification that the annular space has been filled with grout.

When the grout is pumped into the annular space between the existing culvert and liner pipe, the contractor shall prevent the floating of the liner pipe. This shall be accomplished by any of the following methods:

- (a) Intermittent Pumping Method. Small amounts of grout shall be pumped into the annular space and allowed to harden. This shall continue until the bond between the liner pipe and grout is sufficient to resist floating. The remainder of the annular space shall then be filled.
- (b) Bracing Method. Braces shall be installed in the annular space to prevent floating of the liner pipe. Only braces which do not damage the liner pipe shall be used.

(c) Water Fill Method. The liner pipe shall be temporarily filled with water before filling the annular space with grout.

(d) Other Methods. Other methods may be used with the approval of the Engineer.

The pumping operation shall effectively fill the annular space along the entire length, but shall be performed in a manner that shall not distort the liner pipe. The pressure developed in the annular space shall not exceed the liner pipe manufacturer's recommended value.

Upon completion of the pumping operation, the remaining 150 mm (6 in.) at the upstream and downstream ends shall be filled with a nonshrink grout. Only enough water to make a stiff but workable nonshrink grout shall be used.

**543.04 Method of Measurement.** This work will be measured for payment in meters (feet) in place.

**543.05 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for INSERTION CULVERT LINER of the inside diameter specified.

Excavation in rock will be measured and paid for according to Section 502."

Revise Article 1040.18 of the Standard Specifications to read:

**"1040.18 Polyethylene (PE) Profile Wall Pipe Liner.** Polyethylene (PE) profile wall pipe liner shall conform to the requirements of ASTM F 667 for sizes 250 to 375 mm (10 to 15 in.) and to ASTM F 894 for sizes 450 to 2400 mm (18 to 96 in.). All sizes shall have wall construction that presents essentially smooth internal and external surfaces. The pipe liner shall have a minimum pipe stiffness of 320 kPa (46 psi) at five percent deflection for nominal inside diameters of 1050 mm (42 in.) or less. For pipes with a nominal inside diameter greater than 1050 mm (42 in.) the pipe liner shall have a minimum pipe stiffness of 224 kPa (32.5 psi) at five percent deflection."

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Lime Gradation Requirements

July 26, 2002

This special provision was developed by the Bureau of Materials and Physical Research. It revises the current lime gradation requirements. It should be inserted into all contracts requiring lime in soil mixtures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80081m

## **LIME GRADATION REQUIREMENTS (BDE)**

Effective: November 1, 2002

Revise Articles 1012.03(e) and 1012.04(e) of the Standard Specifications to modify the maximum percent retained on the 150  $\mu\text{m}$  (No. 100) sieve from "25" to "30".

80081

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Multilane Pavement Patching

July 26, 2002

This special provision was developed to address work stoppages and material shortages that have been occurring with pavement patching. It is intended to prevent broken pavement and open holes from being exposed to traffic during weekend and holiday periods. It should be inserted into all projects involving multilane pavement patching.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80082m

## **MULTILANE PAVEMENT PATCHING (BDE)**

Effective: November 1, 2002

Pavement broken and holes opened for patching shall be completed prior to weekend or holiday periods. Should delays of any type or for any reason prevent the completion of the work, temporary patches shall be constructed. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary patches. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

80082

All District Engineers, Walter S. Kos, & Miguel d'Escoto

Michael L. Hine

Special Provision for Portland Cement Concrete

July 26, 2002

This special provision was developed by the Bureau of Materials and Physical Research and the PCC Technical Group. It should be inserted into all concrete contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80083m

## **PORTLAND CEMENT CONCRETE (BDE)**

Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

“The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

“The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

“The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

“The plant shall be approved before production begins according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

80083



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Preformed Recycled Rubber Joint Filler

July 26, 2002

This special provision was developed by the Illinois Highway Development Council to add another material option for preformed expansion joint fillers. It should be inserted into contracts involving the construction or repair of expansion joints in pcc railroad crossings, pcc sidewalk, concrete structures, pcc curb, gutter, combination curb and gutter, median, paved ditch and concrete barrier.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80084m

**PREFORMED RECYCLED RUBBER JOINT FILLER (BDE)**

Effective: November 1, 2002

Revise Article 503.02(c) of the Standard Specifications to read:

“(c) Preformed Expansion Joint Filler .....1051”

Revise Article 637.02(d) of the Standard Specifications to read:

“(d) Preformed Expansion Joint Filler .....1051”

Add the following Article to Section 1051 of the Standard Specifications:

“1051.10 Preformed Recycled Rubber Joint Filler. Preformed recycled rubber joint filler shall consist of ground tire rubber, free of steel and fabric, combined with ground scrap or waste polyethylene. It shall not have a strong hydrocarbon or rancid odor and shall meet the physical property requirements of ASTM D 1752. Water absorption by volume shall not exceed 5.0 percent.”

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Sealing Abandoned Water Wells

July 26, 2002

This special provision was developed by the Bureau of Design and Environment. This special provision should be inserted into all contracts where work involves sealing abandoned water wells.

It is no longer necessary to coordinate this work with the Foundations Unit of the Bureau of Bridges and Structures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80085m

## **SEALING ABANDONED WATER WELLS (BDE)**

Effective: November 1, 2002

Description. This work shall consist of sealing abandoned water wells. Work shall be performed according to the "Illinois Water Well Construction Code (77 Illinois Administrative Code 920)".

Work shall be performed by a licensed water well driller. A list of licensed water well drillers is available from the Illinois Department of Public Health offices in Springfield.

Any available information, such as well type, diameter, depth and geologic data will be shown on the plans.

Basis of Payment. This work will be paid for at the contract unit price per each for SEALING ABANDONED WATER WELLS.

80085

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Subgrade Preparation

July 26, 2002

This special provision was developed by Subgrade Stability Manual Committee. It reduces the maximum allowable rut depth in subgrades from 50 mm (2 in.) to 13 mm (1/2 in.). It should be inserted into all contracts involving subgrade preparation.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80086m

## **SUBGRADE PREPARATION (BDE)**

Effective: November 1, 2002

Revise the tenth paragraph of Article 301.03 of the Standard Specifications to read:

“Equipment of such weight, or used in such a way as to cause a rut in the finished subgrade of 13 mm (1/2 in.) or more in depth, shall be removed from the work or the rutting otherwise prevented.”

80086

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Temporary Erosion Control

July 26, 2002

This special provision was developed by the Illinois Highway Development Council to add another material option for temporary ditch checks. It should be inserted into all contracts involving temporary erosion control.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80087m

## **TEMPORARY EROSION CONTROL (BDE)**

Effective: November 1, 2002

Revise the fifth sentence of the third paragraph of Article 280.04(a) of the Standard Specifications to read:

“This work may be constructed of hay or straw bales, extruded UV resistant high density polyethylene panels, erosion control blanket, mulch barrier, aggregate barriers, excavation, seeding, or mulch used separately or in combination, as approved, by the Engineer.”

Add the following paragraphs after the fifth paragraph of Article 280.04(a) of the Standard Specifications.

“A ditch check constructed of extruded, UV resistant, high density polyethylene panels, “M” pins and erosion control blanket shall consist of the following materials:

Extruded, UV resistant, high density polyethylene panels shall have a minimum height of 250 mm (10 in.) and minimum length of 1.0 m (39.4 in.). The panels shall have a 51 mm (2 in.) lip along the bottom of the panel. Each panel shall have a single rib thickness of 4 mm (5/32 in.) with a 12 mm (1/2 in.) distance between the ribs. The panels shall have an average apparent opening size equal to 4.75 mm (No. 4) sieve, with an average of 30 percent open area. The tensile strength of each panel shall be 26.27 kN/m (1800 lb/ft) in the machine direction and 7.3 kN/m (500 lb/ft) in the transverse direction when tested according to ASTM D 4595.

“M” pins shall be at least 76 mm (3 in.) by 686 mm (27 in.), constructed out of deformed grade C1008 D3.5 rod (0.211 in. diameter). The rod shall have a minimum tensile strength of 55 MPa (8000 psi).

Erosion control blanket shall conform to Article 251.04.

A section of erosion control blanket shall be placed transverse to the flowline direction of the ditch prior to the construction of the polyethylene ditch check. The length of the section shall extend from the top of one side of the ditch to the top of the opposite side of the ditch, while the width of the section shall be one roll width of the blanket. The upstream edge of the erosion control blanket shall be secured in a 100 mm (4 in.) trench. The blanket shall be secured in the trench with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge before the trench is backfilled. Once the upstream edge of the blanket is secured, the downstream edge shall be secured with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge. The polyethylene ditch check shall be installed in the middle of the erosion control blanket, with the lip of each panel facing outward.



The ditch check shall consist of two panels placed back to back forming a single row. Placement of the first two panels shall be at the toe of the backslope or sideslope, with the panels extending across the bottom of the ditch. Subsequent panels shall extend both across the bottom of the ditch and up the opposite sideslope, as well as up the original backslope or sideslope at the distance determined by the Engineer.

The M pins shall be driven through the panel lips to secure the panels to the ground. M pins shall be installed in the center of the panels with adjacent panels overlapping the ends a minimum of 50 mm (2 in.). The pins shall be placed through both sets of panels at each overlap. They shall be installed at an interval of three M pins per one meter (39 in.) length of ditch check. The panels shall be wedged into the M pins at the top to ensure firm contact between the entire bottom of the panels and the soil.”

80087

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Traffic Structures

July 26, 2002

This special provision was developed by the Bureau of Bridges and Structures. It should be inserted into all contracts with light poles, light towers or mast arm assembly and poles.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80088m

## **TRAFFIC STRUCTURES (BDE)**

Effective: November 1, 2002

Add the following sentence to the end of the first paragraph of Article 1069.01(a)(1) of the Standard Specifications:

“Light poles shall be designed for 145 km/hr (90 mph) wind velocity and a minimum design life of 50 years.”

Add the following sentence to the end of the third paragraph of Article 1069.04(a) of the Standard Specifications:

“Light towers shall be designed for 145 km/hr (90 mph) wind velocity and a minimum design life of 50 years.”

Revise the last sentence of the first paragraph of Article 1077.03(a)(1) of the Standard Specifications to read:

“The design shall be according to AASHTO “Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals” 1994 Edition for 130 km/hr (80 mph) wind velocity. However the arm-to-pole connection shall be according to the “ring plate” detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO “Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals” 2001 4<sup>th</sup> Edition.”

80088

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Vertical Barricades

September 27, 2002

This special provision was developed by the Bureau of Operations at the request of the District Engineers. It has been revised to meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350. It should be inserted into all contracts with lane closures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80089m

## **VERTICAL BARRICADES (BDE)**

Effective: November 1, 2002

Revised: January 1, 2003

Add the following to Article 702.03 of the Standard Specifications:

“(h) Vertical Barricades. Vertical Barricades shall meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350 and the special provision “Work Zone Traffic Control Devices”. Vertical barricades may be used in lieu of cones, drums or Type I and Type II barricades to channelize traffic. Vertical barricades shall not be used in lane closure tapers.”

80089

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Work Zone Public Information Signs

July 26, 2002

This special provision was developed by the Bureau of Operations as part of the Department's public information campaign. It requires "PLEASE SLOW DOWN, MY MOMMY/DADDY WORKS HERE" signs in advance of work zones.

It should be used on all interstate and other high visibility contracts in lieu of the "GIVE 'EM A BREAK" signs.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80090m

## **WORK ZONE PUBLIC INFORMATION SIGNS (BDE)**

Effective: September 1, 2002

Description. This work shall consist of the erection, maintenance and removal of "PLEASE SLOW DOWN, MY MOMMY WORKS HERE" signs and/or "PLEASE SLOW DOWN, MY DADDY WORKS HERE" signs. The signs shall be erected in matching pairs on each side of each approach to the work zone, midway between the first and second advance warning signs according to Article 702.05(a) of the Standard Specifications and Highway Standard 702001.

The 1200 mm x 1500 mm (48 in. x 60 in.) sign panels will be furnished by the Department. Upon completion of the project, the sign panels shall be removed and returned to the Department.

Method of Measurement. Each sign will be measured as one each.

Basis of Payment. This work will be paid for at the contract unit price per each for WORK ZONE PUBLIC INFORMATION SIGNS.

80090

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Underdrain Operations

July 26, 2002

This special provision was developed to minimize motorists' inconvenience. It is intended to prevent unnecessary weekend lane closures during underdrain operations. It should be inserted into all projects involving underdrains.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 8, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory July 26, 2002.

80091m



## **UNDERDRAIN OPERATIONS (BDE)**

Effective: November 1, 2002

Underdrain operations shall be completed prior to weekend periods. Should delays of any type or for any reason prevent the completion of the work, the underdrain trenches shall be temporarily backfilled. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary backfill. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

80091

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Temporary Concrete Barrier

September 27, 2002

This special provision was developed by the Bureau of Design and Environment to meet the National Cooperative Highway Research Program (NCHRP) Report 350 requirements and to introduce the IDOT F shape barrier design. It has been revised for clarification and should be inserted into all contracts using temporary concrete barrier.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80092m

## TEMPORARY CONCRETE BARRIER (BDE)

Effective: October 1, 2002

Revised: January 1, 2003

Revise Section 704 of the Standard Specifications to read:

### “SECTION 704. TEMPORARY CONCRETE BARRIER

**704.01 Description.** This work shall consist of furnishing, placing, maintaining, relocating and removing precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer.

**704.02 Materials.** Materials shall meet the requirements of the following Articles of Section 1000 - Materials:

| Item  | Article/Section |
|---|-----------------|
| (a) Portland Cement Concrete .....          | 1020            |
| (b) Reinforcement Bars (Note 1) .....       | 1006.10(a)(b)   |
| (c) Connecting Pins and Anchoring Pins..... | 1006.09         |
| (d) Connecting Loop Bars (Note 2)           |                 |
| (e) Rapid Set Mortar (Note 3)               |                 |

Note 1. Reinforcement bars shall be Grade 400 (Grade 60).

Note 2. Connecting loop bars shall be smooth bars conforming to the requirements of ASTM A 36.

Note 3. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

### CONSTRUCTION REQUIREMENTS

**704.03 General.** Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. Precast units

shall not be transported to the jobsite until a minimum flexural strength of 4,500 kPa (650 psi) or a minimum compressive strength of 24,000 kPa (3500 psi) is attained. In no case shall precast units be loaded, shipped and used prior to four days after casting.

**704.04 Installation.** F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an accepted NCHRP 350, Test Level 3, crashworthy device as shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**704.05 New Jersey Shape Barrier.** New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an accepted NCHRP 350, Test Level 3, crashworthy device as shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**704.06 Method of Measurement.** Temporary concrete barrier will be measured for payment in meters (feet) in place along the centerline of the barrier. When temporary concrete barrier is relocated within the limits of the jobsite, the relocated barrier will be measured for payment in meters (feet) in place along the centerline of the barrier.

**704.07 Basis of Payment.** When the Contractor furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER or RELOCATE TEMPORARY CONCRETE BARRIER.

When the Department furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER, STATE OWNED or RELOCATE TEMPORARY CONCRETE BARRIER, STATE OWNED.

The NCHRP 350 crashworthy device will be paid for separately.”

80092

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Articulated Block Revetment Mat

September 27, 2002

This special provision was developed by the Bureau of Materials & Physical Research and the Bureau of Design & Environment to provide material requirements for articulated block revetment mat and disregard conflicting information between Articles 281.04(e), 285.06, 1005.02(e) and 1081.12 of the Standard Specifications. This special provision should be inserted into all contracts using articulated block revetment mat.

Designer Notes:

- (a) Based upon hydraulic analysis, the designer must specify the following information on the plans:
  - (1) The size and mass (weight) of the blocks.
  - (2) The frequency and depth of mat anchors.
  - (3) Whether the configuration of the mat is open-cell (has voids) or closed-cell (solid surface).
- (b) Based upon aesthetics, the designer must decide if the finished mat is to be seeded. Topsoil and seeding are separate items of work and are not addressed herein.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80093m

## ARTICULATED BLOCK REVETMENT MAT (BDE)

Effective: January 1, 2003

Description. This work shall consist of furnishing and placing articulated block revetment mat.

Materials. Materials shall meet the requirements of the following Articles of Section 1000 of the Standard Specifications:

| Item  | Article/Section  |
|---|------------------|
| (a) Portland or Blended Hydraulic Cement..... | 1001.01          |
| (b) Water.....                                | 1002             |
| (c) Fine Aggregate.....                       | 1003.02          |
| (d) Coarse Aggregate (Note 1).....            | 1004.02          |
| (e) Fly Ash .....                             | 1010.01, 1010.03 |
| (f) Hydrated Lime (Note 2)                    |                  |
| (g) Ground Granulated Blast-Furnace Slag..... | 1016             |
| (h) Filter Fabric.....                        | 1080.03          |
| (i) Cable, Anchors and Fittings (Note 3)      |                  |

Note 1. Chert gravel may be used based on past, satisfactory, in-service performance.

Note 2. Hydrated lime shall conform to the requirements of ASTM C 207.

Note 3. Cable, anchors and fittings, such as sleeves, clamps and stops, shall be corrosion resistant and according to the manufacturer's specifications.

The block size, block mass (weight) and mat configuration (open-cell or closed-cell) shall be as specified on the plans.

Physical Properties. Physical properties of the blocks shall conform to the following:

| Minimum Compressive Strength, kPa (psi) <sup>1/</sup> |                 | Maximum Water Absorption, kg/cu m (lb/cu ft) (ASTM C 140) |                 | Minimum Density (in air), kg/cu m (lb/cu ft) |                 |
|---|-----------------|---|-----------------|--|-----------------|
| Average of 3 Units                                    | Individual Unit | Average of 3 Units  | Individual Unit | Average of 3 Units                           | Individual Unit |
| 27,500 (4000)   | 24,000 (3500)   | 145.8 (9.1)   | 187.4 (11.7)    | 2082 (130)                                   | 2002 (125)      |

1/ For precast concrete block produced by the wet-cast method, compressive strength shall be determined according to Article 1020.09 of the Standard Specifications, or AASHTO T 24. For precast concrete block produced by the dry-cast method, compressive strength shall be determined according to ASTM C 140.

For precast concrete block produced by the wet-cast method, the air content shall be between 5.0 and 8.0 percent and determined according to Article 1020.08 of the Standard Specifications.

Freeze/Thaw Durability. Testing shall be according to either ASTM C 67 or ASTM C 1262.

- (a) ASTM C 67. Specimens shall have no breakage and not greater than 1.0 percent loss in dry mass (weight) of any individual unit when subjected to 50 cycles of freezing and thawing.
- (b) ASTM C 1262. Specimens shall comply with either of the following:
  - (1) The mass (weight) loss of each of five test specimens at the conclusion of 100 cycles shall not exceed 1 percent of its initial mass (weight).
  - (2) The mass (weight) loss of each of four of the five test specimens at the conclusion of 150 cycles shall not exceed 1.5 percent of its initial mass (weight).

Equipment. Equipment used to lift and place the mats shall be approved by the Engineer.

### CONSTRUCTION REQUIREMENTS

General. The surface to be protected shall be graded to the lines shown on the plans such that it is stable in the absence of erosive forces and shall be prepared according to Article 282.04 of the Standard Specifications.

Filter Fabric. Filter fabric shall be installed according to Section 282 of the Standard Specifications prior to placing the articulated block revetment mat or it may be secured to the bottom of the mat according to the manufacturer's specifications and installed concurrently.

Placement. Normally, placement of the mats shall begin at the downstream end and proceed upstream. At side slopes, placement shall begin at the toe and proceed up. The upstream and outside edges of the mat shall be trenched at least one block deep and backfilled. The downstream edge shall be flush with the existing ground.

As mats are placed, they shall be anchored at the frequency and depth shown on the plans. If required by the manufacturer, adjacent mats shall be clamped or crimped together as well.

After placement of the mats, the voids in and around the blocks shall be filled with soil meeting the approval of the Engineer.

Excessive openings between mats shall be filled with Class SI concrete as directed by the Engineer.

Method of Measurement. This work will be measured for payment in place and the area computed in square meters (square yards). The portion of the mat in trenches will not be measured.

Filter fabric will be measured for payment according to Article 282.08 of the Standard Specifications.



Basis of Payment. This work will be paid for at the contract unit price per square meter (square yard) for ARTICULATED BLOCK MAT.

Filter fabric will be paid for according to Article 282.09 of the Standard Specifications.

Filling excessive openings between mats with Class SI concrete will be paid for according to Article 109.04 of the Standard Specifications.

80093

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Concrete Admixtures

September 27, 2002

This special provision was developed by the Bureau of Materials and Physical Research. It should be inserted into all concrete contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80094m

## **CONCRETE ADMIXTURES (BDE)**

Effective: January 1, 2003

Revise the sixth paragraph of Article 1020.05(b) of the Standard Specifications to read:

“The maximum slumps given in Table 1 may be increased to 175 mm (7 in.) when a high range water-reducing admixture is used for all classes of concrete except Class PV and PP.”

Revise Section 1021 of the Standard Specifications to read:

### **“SECTION 1021. CONCRETE ADMIXTURES**

**1021.01 General.** Admixtures shall be furnished in liquid form ready for use. The admixtures may be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer and trade name of the material. In all cases, containers shall be readily identifiable to the satisfaction of the Engineer as to manufacturer and trade name of the material they contain.

Prior to inclusion of a product on the Department's Approved List of Concrete Admixtures, the manufacturer shall submit a report prepared by an independent laboratory accredited by the AASHTO Accreditation Program. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.

Tests shall be conducted using materials and methods specified on a "test" concrete and a "reference" concrete, together with a certification that no changes have been made in the formulation of the material since the performance of the tests. The report shall also include water contents and results of set time tests according to AASHTO T 197 that were conducted on both a test and reference concrete, using cement from the source that is used as a standard by the Bureau of Materials and Physical Research. The cement content for all required tests shall either be according to applicable specifications or 335 kg/cu m (5.65 cwt/cu yd). Compressive strength test results for six months and one year will not be required.

Prior to the approval of an admixture, the Engineer may conduct all or part of the applicable tests on a sample that is representative of the material to be furnished. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 335 kg/cu m (5.65 cwt/cu yd).

The manufacturer shall submit certification, both initially and annually thereafter, giving the following information according to ASTM C 494; the average and manufacturing range of specific gravity, the average and manufacturing range of solids in the solution, and the average and manufacturing range of pH. The initial and annual certifications shall further state that all admixtures, except chloride-based accelerators, shall contain no more than 0.3 percent chloride by mass. The initial submittal shall also include an infrared spectrophotometer trace no more than five years old.

Annual re-submittals will be required and shall include certification that no changes have been made in the formulation since it was initially approved. The certification shall state that the admixture is the same as previously approved, and the Engineer may conduct such tests as deemed desirable to check the properties of the material before re-approval is granted.

When test results are more than seven years old, the manufacturer shall re-submit the infrared spectrophotometer trace and the report prepared by an independent laboratory that is accredited by AASHTO Accreditation Program.

**1021.02 Air-Entraining Admixtures.** Air-entraining admixtures shall conform to the requirements of AASHTO M 154.

If the manufacturer certifies that the air-entraining admixture is an aqueous solution of Vinsol resin that has been neutralized with sodium hydroxide (caustic soda), testing for compliance with the requirements may be waived by the Engineer. In the certification, the manufacturer shall show complete information with respect to the formulation of the solution, including the number of parts of Vinsol resin to each part of sodium hydroxide. Before the approval of its use is granted, the Engineer will test the solution for its air-entraining quality in comparison with a solution prepared and kept for that purpose.

**1021.03 Retarding and Water-Reducing Admixtures.** The admixture shall comply with the following requirements:

- (a) The retarding admixture shall comply with the requirements of AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) The water-reducing admixture shall comply with the requirements of AASHTO M 194, Type A.
- (c) The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

When a Type F or Type G high range water-reducing admixture is used, water-cement ratios shall be a minimum of 0.32.

Type F or Type G admixtures may be used, subject to the following restrictions:

For Class MS, SI, RR, SC and SH concrete, the water-cement ratio shall be a maximum of 0.44.

The Type F or Type G admixture shall be added at the jobsite unless otherwise directed by the Engineer. The initial slump shall be a minimum of 40 mm (1 1/2 in.) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.

When a Type F or Type G admixture is used, retempering with water or with a Type G admixture will not be allowed. An additional dosage of a Type F admixture, not to exceed 40 percent of the original dosage, may be used to retemper concrete once, provided set time is not unduly affected. A second retempering with a Type F admixture may be used for all classes of concrete except Class PP and SC, provided that the dosage does not exceed the dosage used for the first retempering, and provided that the set time is not unduly affected. No further retempering will be allowed.

Air tests shall be performed after the addition of the Type F or Type G admixture.

**1021.04 Set Accelerating Admixtures.** The admixture shall comply with the requirements of AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating)”

80094

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Precast Block Revetment Mat

September 27, 2002

This special provision was developed by the Bureau of Materials & Physical Research and the Bureau of Design & Environment to provide material requirements for precast block revetment mat and disregard conflicting information between Articles 281.04(b), 285.05, 1005.02 and 1081.11 of the Standard Specifications. This special provision should be inserted into all contracts using precast block revetment mat.

Designer Notes:

- (a) Based upon hydraulic analysis, the designer must specify the following information on the plans:
  - (1) The size and mass (weight) of the blocks.
  - (2) Whether the configuration of the blocks is interlocking or non-interlocking.
  - (3) Whether the configuration of the mat is open-cell (has voids) or closed-cell (solid surface).
- (b) Based upon aesthetics, the designer must decide if the finished mat is to be seeded. Topsoil and seeding are separate items of work and are not addressed herein.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80095m

## PRECAST BLOCK REVETMENT MAT (BDE)

Effective: January 1, 2003

Description. This work shall consist of furnishing and placing precast block revetment mat.

Materials. Materials shall meet the requirements of the following Articles of Section 1000 of the Standard Specifications:

| Item  | Article/Section  |
|---|------------------|
| (a) Portland or Blended Hydraulic Cement..... | 1001.01          |
| (b) Water.....                                | 1002             |
| (c) Fine Aggregate.....                       | 1003.02          |
| (d) Coarse Aggregate (Note 1).....            | 1004.02          |
| (e) Fly Ash .....                             | 1010.01, 1010.03 |
| (f) Hydrated Lime (Note 2)                    |                  |
| (g) Ground Granulated Blast-Furnace Slag..... | 1016             |
| (h) Filter Fabric.....                        | 1080.03          |

Note 1. Chert gravel may be used based on past, satisfactory, in-service performance.

Note 2. Hydrated lime shall conform to the requirements of ASTM C 207.

The block size, block mass (weight), block configuration (interlocking or non-interlocking) and mat configuration (open-cell or closed-cell) shall be as specified on the plans.

Physical Properties. Physical properties of the blocks shall conform to the following:

| Minimum Compressive Strength,<br>kPa (psi) <sup>1/</sup> |                    | Maximum Water Absorption,<br>kg/cu m (lb/cu ft)<br>(ASTM C 140) |                    | Minimum Density (in air),<br>kg/cu m (lb/cu ft) |                    |
|--|--------------------|---|--------------------|---|--------------------|
| Average of 3<br>Units                                    | Individual<br>Unit | Average of 3<br>Units   | Individual<br>Unit | Average of<br>3 Units                           | Individual<br>Unit |
| 27,500 (4,000)   | 24,000 (3,500)     | 145.8 (9.1)   | 187.4 (11.7)       | 2082 (130)                                      | 2002 (125)         |

1/ For precast concrete block produced by the wet-cast method, compressive strength shall be determined according to Article 1020.09 of the Standard Specifications, or AASHTO T 24. For precast concrete block produced by the dry-cast method, compressive strength shall be determined according to ASTM C 140.

For precast concrete block produced by the wet-cast method, the air content shall be between 5.0 and 8.0 percent and determined according to Article 1020.08 of the Standard Specifications.

Freeze/Thaw Durability. Testing shall be according to either ASTM C 67 or ASTM C 1262.

- (a) ASTM C 67. Specimens shall have no breakage and not greater than 1.0 percent loss in dry mass (weight) of any individual unit when subjected to 50 cycles of freezing and thawing.
- (b) ASTM C 1262. Specimens shall comply with either of the following:
  - (1) The mass (weight) loss of each of five test specimens at the conclusion of 100 cycles shall not exceed 1 percent of its initial mass (weight).
  - (2) The mass (weight) loss of each of four of the five test specimens at the conclusion of 150 cycles shall not exceed 1.5 percent of its initial mass (weight).

Equipment. Equipment used to lift and place the blocks/mats shall be approved by the Engineer.

### CONSTRUCTION REQUIREMENTS

General. The surface to be protected shall be graded to the lines shown on the plans such that it is stable in the absence of erosive forces and shall be prepared according to Article 282.04 of the Standard Specifications.

Filter Fabric. Filter fabric shall be installed according Section 282 of the Standard Specifications prior to placement of the precast block revetment mat.

Placement. The precast blocks may be placed individually or as pre-assembled mats. Normally, placement shall begin at the downstream end and proceed upstream. At side slopes, placement shall begin at the toe and proceed up. All edges of the precast block revetment mat shall be flush with the existing ground.

Orientation of the blocks with respect to water flow shall be as specified by the manufacturer.

After placement, the voids in and around the blocks shall be filled with soil meeting the approval of the Engineer.

Method of Measurement. This work will be measured for payment in place and the area computed in square meters (square yards).

Filter fabric will be measured for payment according to Article 282.08 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per square meter (square yard) for PRECAST BLOCK REVETMENT MAT.

Filter fabric will be paid for according to Article 282.09 of the Standard Specifications.



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Shoulder Rumble Strips

September 27, 2002

This special provision was developed by the Bureau of Design and Environment.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80096m

## **SHOULDER RUMBLE STRIPS (BDE)**

Effective: January 1, 2003

Delete the third paragraph of Article 482.06 of the Standard Specifications.

Delete the last two sentences of the fourth paragraph of Article 483.06 of the Standard Specifications.

Add the following to the Standard Specifications:

### **“SECTION 642. SHOULDER RUMBLE STRIPS**

**642.01 Description.** This work shall consist of constructing rumble strips in shoulders.

**642.02 Equipment.** The equipment shall be a self-propelled milling machine with a rotary-type cutting head(s). The cutting head(s) shall be suspended from the machine such that it can align itself with the slope of the shoulder and any irregularities in the shoulder surface. The teeth of the cutting head(s) shall be arranged to provide a smooth cut, with no more than a 3 mm (1/8 in.) difference between peaks and valleys.

Prior to commencement of the work, the Contractor shall demonstrate, to the satisfaction of the Engineer, the ability of the equipment to achieve the desired results without damaging the shoulder.

### **CONSTRUCTION REQUIREMENTS**

**642.03 General.** The rumble strips shall be cut to the dimensions shown on the plans. Guides shall be used to ensure consistent alignment, spacing and depth. In portland cement concrete shoulders, rumble strips may be formed according to the details shown on the plans immediately after the application of the final finish.

Rumble strips shall be omitted within the limits of structures, entrances, side roads, entrance ramps and exit ramps. In portland cement concrete shoulders, rumble strips shall not be placed within 150 mm (6 in.) of transverse joints.

Cuttings resulting from this operation shall be disposed of according to Article 202.03 of the Standard Specifications and the shoulders shall be swept clean.

**642.04 Method of Measurement.** This work will be measured for payment in meters (feet) along the edge of pavement. Measurement will include both the cut and uncut (formed and unformed) sections of the shoulder rumble strips with exceptions for bridge decks, approach pavements, turn lanes, entrances and other sections where shoulder rumble strips have been omitted.

**642.05 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for SHOULDER RUMBLE STRIPS.”

80096

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Flagger Vests

January 10, 2003

This special provision was developed by the Bureau of Operations to bring our specifications for flagger vests into compliance with the American National Standards Institute specification ANSI/ISEA 107-1999 for high visibility safety apparel and should be inserted into all contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory January 10, 2003.

80101m

## **FLAGGER VESTS (BDE)**

Effective: April 1, 2003

Revise the first sentence of Article 701.04(c)(1) of the Standard Specifications to read:

“The flagger shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard 702001 and Article 702.05(e).”

Revise Article 701.04(c)(6) of the Standard Specifications to read:

“(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange or fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments.”

80101

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Traffic Barrier Terminals

September 27, 2002

This special provision was developed by the Bureau of Design and Environment to meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350. It should be inserted into all contracts involving traffic barrier terminals, Type 6 or 6B.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory September 27, 2002.

80098m

## **TRAFFIC BARRIER TERMINALS (BDE)**

Effective: January 1, 2003

Revise Article 631.05 of the Standard Specifications to read:

**“631.05 Traffic Barrier Terminal, Type 5 and Type 5A.** The face of the guardrail shall be installed flush with the face of the bridge rail or parapet.”

Revise Article 631.06 of the Standard Specifications to read:

**“631.06 Traffic Barrier Terminal, Type 6.** When attaching the end shoe to concrete constructed with forms and with a thickness of 300 mm (12 in.) or less, the holes may be formed, core drilled or an approved 20 mm (3/4 in.) cast-in-place insert may be used.

When attaching the end shoe to concrete constructed with forms and with a thickness greater than 300 mm (12 in.), an approved M20 (3/4 in.) bolt with an approved expansion device may be used in lieu of formed or core drilled holes.

When attaching the end shoe to concrete constructed by slipforming, the holes shall be core drilled.

The tapered, parapet, wood block out shall be used on all appurtenances with a sloped face.

When no bridge approach curb is present, Type B concrete curb shall be constructed as shown on the plans according to Section 606.”

Revise Article 631.07 of the Standard Specifications to read:

**“631.07 Traffic Barrier Terminal, Type 6B.** Attachment of the end shoe to concrete shall be according to Article 631.06 except the tapered, parapet, wood block out will not be required.”

Delete the third and fourth paragraphs of Article 631.11 of the Standard Specifications.

Add the following paragraph to the end of Article 631.11 of the Standard Specifications:

“Construction of the Type B concrete curb for TRAFFIC BARRIER TERMINAL, TYPE 6 will be paid for according to Article 606.14.”

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Accessible Pedestrian Signals (APS)

January 10, 2003

This special provision was developed by the Bureau of Operations and the Bureau of Design and Environment to provide statewide requirements for accessible pedestrian signals (APS). It should be inserted into all contracts using APS.

The installation of APS at signalized intersections should be based on an engineering study and consider the following factors:

- A request for accessible pedestrian signals.
- Potential demand for accessible pedestrian signals.
- Traffic volumes during times when pedestrians might be present; including periods of low traffic volumes or high turn-on-red volumes.
- The complexity of traffic signal phasing.
- The complexity of intersection geometry.

Written support of local municipal officials will be required prior to approving the use of APS in contracts.

Designer Note: Pedestrian pushbutton posts and pedestrian signal heads are not part of this work. If they are needed, use the appropriate pay items as per Sections 876 and 881 of the Standard Specifications.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory January 10, 2003.

80099m



## **ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)**

Effective: April 1, 2003

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive pedestrian pushbutton with speaker, an informational sign, a solid state electronic control board, a power supply, wiring and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 802 and 873 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -34 °C to +70 °C (-29 °F to +160 °F).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be "WALK SIGN", which may be followed by the name of the street to be crossed. No other messages shall be used to denote the WALK interval.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 89 dB. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 50 mm (2 in.) in diameter or width. The force required to activate the pushbutton shall be no greater than 15.5 N (3.5 lb).

If a pushbutton is depressed for three seconds, a custom verbal message shall be given before the walk cycle goes into effect which tells the pedestrian their location or other pertinent information about the intersection.

A red light emitting diode (LED) shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall resemble either of the following:



Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign. This arrow shall meet the requirements of Section X02.5.1.4 of the U.S. Access Board's "Public Rights-of-way Access Advisory Committee Report, 2001".

Vibrotactile Feature. When specified on the plans, vibrotactile messages shall also be provided at each pedestrian pushbutton. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

When provided the vibrotactile feature will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

When provided, the vibrotactile feature will be paid for at the contract unit price per each for VIBROTACTILE FEATURE.

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Epoxy Coatings for Steel Reinforcement

January 10, 2003

This special provision was developed by the Bureau of Materials and Physical Research. It requires all producer's of epoxy coated reinforcing steel to be certified by the Concrete Reinforcing Steel Institute's (CRSI) Epoxy Plant Certification Program.

This special provision should be inserted in all contracts using epoxy coated steel reinforcement or dowel bars.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory January 10, 2003.

80100m

## **EPOXY COATINGS FOR STEEL REINFORCEMENT (BDE)**

Effective: April 1, 2003

Revise Article 1006.10(b)(2) of the Standard Specifications to read:

“(2) Epoxy Coated Reinforcement Bars. Epoxy coated reinforcement bars shall conform to the requirements of AASHTO M 284M (M 284), except:

- a. The maximum thickness of epoxy coating on spiral reinforcement, coated after fabrication, shall be 0.5 mm (20 mils).
- b. No more than eight of the holidays permitted shall be in any 300 mm (1 ft) of length for continuity of coating.

The epoxy coating applicator shall be certified under the Concrete Reinforcing Steel Institute's (CRSI) Epoxy Plant Certification Program.

The epoxy coater shall provide access for the Engineer at any time during production or shipping. Random bars may be checked at the epoxy coater's facility or the jobsite for coating uniformity, thickness and discontinuity; cracks on the bends; and other damaged areas. Upon request, the coater shall provide samples for testing by the Engineer.

Bars may be sheared or sawn to length after coating, provided end damage to coating does not extend more than 15 mm (1/2 in.) back and the cut end is patched before any visible oxidation appears. Flame cutting will not be permitted.”

Add the following paragraph after the first paragraph of Article 1006.11(b) of the Standard Specifications:

“The epoxy coating applicator shall be certified under the Concrete Reinforcing Steel Institute's (CRSI) Epoxy Plant Certification Program.”

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Flagger Vests

January 10, 2003

This special provision was developed by the Bureau of Operations to bring our specifications for flagger vests into compliance with the American National Standards Institute specification ANSI/ISEA 107-1999 for high visibility safety apparel and should be inserted into all contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory January 10, 2003.

80101m

## **FLAGGER VESTS (BDE)**

Effective: April 1, 2003

Revise the first sentence of Article 701.04(c)(1) of the Standard Specifications to read:

“The flagger shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard 702001 and Article 702.05(e).”

Revise Article 701.04(c)(6) of the Standard Specifications to read:

“(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange or fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments.”

80101

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Corrugated Metal Pipe Culverts

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research and the Illinois Highway Development Council to allow an alternate method of joining corrugated metal pipe. It should be inserted into all contracts involving corrugated metal or Class D pipe.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80102m

## **CORRUGATED METAL PIPE CULVERTS (BDE)**

Effective: August 1, 2003

Revise the fourth paragraph of Article 542.04(d) of the Standard Specifications to read:

“When corrugated steel or aluminum alloy culvert pipe (including bituminous coated steel or aluminum and pre-coated steel) is used, the pipe shall be placed such that the longitudinal lap is placed at the sides and separate sections of pipe shall be joined with a hugger-type band. When the pipes are fabricated with a smooth sleeve-type coupler, the gasket shall meet the requirements of Article 1006.01.”

Add the following paragraph after the first paragraph of Article 1006.01 of the Standard Specifications:

“Round pipes 1200 mm (48 in.) in diameter and smaller may be fabricated with a smooth sleeve-type coupler. Gasket material on the smooth sleeve-type coupler shall be polyisoprene or equal with a durometer hardness of  $45\pm5$  (ASTM D 2240, Shore A). Pipe used with smooth sleeve-type couplers shall contain a homing mark that indicates when the joint is tight. The homing mark shall consist of a painted stripe around the circumference of the male end of the pipe.”

Delete the last sentence of the second paragraph of Article 1006.01(a) of the Standard Specifications.

Add the following paragraph after the first paragraph of Article 1006.03 of the Standard Specifications:

“Round pipes 1200 mm (48 in.) in diameter and smaller may be fabricated with a smooth sleeve-type coupler. Gasket material on the smooth sleeve-type coupler shall be polyisoprene or equal with a durometer hardness of  $45\pm5$  (ASTM D 2240, Shore A). Pipe used with smooth sleeve-type couplers shall contain a homing mark that indicates when the joint is tight. The homing mark shall consist of a painted stripe around the circumference of the male end of the pipe.”



All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Expansion Joints

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research to require plastic expansion caps in lieu of metal pinch stops on the ends of dowel bars in expansion joints. It should be inserted into all contracts involving the construction of expansion joints.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80103m

## **EXPANSION JOINTS (BDE)**

Effective: August 1, 2003

Add the following paragraph after the second paragraph of Article 420.10(e) of the Standard Specifications:

“After the dowel bars are oiled, plastic expansion caps shall be secured to the bars maintaining a minimum expansion gap of 50 mm (2 in.) between the end of the bar and the end of the cap. The caps shall fit snugly on the bar and the closed end shall be watertight. For expansion joints formed using dowel bar basket assemblies, the caps shall be installed on the alternating free ends of the bars. For expansion joints formed using a construction header, the caps shall be installed on the exposed end of each bar once the header has been removed and the joint filler material has been installed.”

80103

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Inlet Filters

April 18, 2003

This special provision was developed by the Bureau of Materials and Physical Research and the Illinois Highway Development Council to provide statewide requirements for inlet filters. Inlet filters may be used as a sediment control device for drainage structures. It should be inserted into contracts as determined by the district.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80104m

## **INLET FILTERS (BDE)**

Effective: August 1, 2003

Add the following to Article 280.02 of the Standard Specifications:

“(k) Inlet Filters..... 1081.15(h)”

Add the following paragraph after the first paragraph of Article 280.04(c) of the Standard Specifications:

“When specified, drainage structures shall be protected with inlet filters. Inlet filters shall be installed either directly on the drainage structure or under the grate of the drainage structure resting on the lip of the frame. The fabric bag shall hang down into the drainage structure. Prior to ordering materials, the Contractor shall determine the size and shape of the various drainage structures being protected.”

Revise Article 280.07(d) of the Standard Specifications to read:

“(d) Inlet and Pipe Protection. This work will be paid for at the contract unit price per each for INLET AND PIPE PROTECTION.

Protection of drainage structures with inlet filters will be paid for at the contract unit price per each for INLET FILTERS.”

Add the following to Article 1081.15 of the Standard Specifications:

“(h) Inlet Filters. An inlet filter shall consist of a steel frame with a two piece geotextile fabric bag attached with a stainless steel band and locking cap that is suspended from the frame. A clean, used bag and a used steel frame in good condition meeting the approval of the Engineer may be substituted for new materials. Materials for the inlet filter assembly shall conform to the following requirements:

(1) Frame Construction. Steel shall conform to Article 1006.04.

Frames designed to fit under a grate shall include an overflow feature that is welded to the frame's ring. The overflow feature shall be designed to allow full flow of water into the structure when the filter bag is full. The dimensions of the frame shall allow the drainage structure grate to fit into the inlet filter assembly frame opening. The assembly frame shall rest on the inside lip of the drainage structure frame for the full variety of existing and proposed drainage structure frames that are present on this contract. The inlet filter assembly frame shall not cause the drainage structure grate to extend higher than 6 mm (1/4 in.) above the drainage structure frame.

- (2) Grate Lock. When the inlet is located in a traffic lane, a grate lock shall be used to secure the grate to the frame. The grate lock shall conform to the manufacturer's requirements for materials and installation.
- (3) Geotextile Fabric Bag. The sediment bag shall be constructed of an inner filter bag and an outer reinforcement bag.
- a. Inner Filter Bag. The inner filter bag shall be constructed of a polypropylene geotextile fabric with a minimum silt and debris capacity of 0.06 cu m (2.0 cu ft). The bag shall conform to the following requirements:

| Inner Filter Bag        |             |                               |
|-------------------------|-------------|-------------------------------|
| Material Property       | Test Method | Minimum Avg. Roll Value       |
| Grab Tensile Strength   | ASTM D 4632 | 45 kg (100 lb)                |
| Grab Tensile Elongation | ASTM D 4632 | 50%                           |
| Puncture Strength       | ASTM D 4833 | 29 kg (65 lb)                 |
| Trapezoidal Tear        | ASTM D 4533 | 20 kg (45 lb)                 |
| UV Resistance           | ASTM D 4355 | 70% at 500 hours              |
| Actual Open Size        | ASTM D 1420 | 212 $\mu$ m (No. 70 sieve US) |
| Permittivity            | ASTM D 4491 | 2.0/sec                       |
| Water Flow Rate         | ASTM D 4491 | 5900 Lpm/sq m (145 gpm/sq ft) |

- b. Outer Reinforcement Bag. The outer reinforcement bag shall be constructed of polyester mesh material that conforms to the following requirements:

| Outer Reinforcement Bag |             |  |
|-------------------------|-------------|--|
| Material Property       | Test Method | Value                                    |
| Content                 | ASTM D 629  | Polyester                                |
| Weight                  | ASTM D 3776 | 155 g/sq m (4.55 oz/sq yd) $\pm$ 15%     |
| Wholes (holes)          | ASTM D 3887 | 7.5 $\pm$ 2 holes/25 mm (1 in.)          |
| Chorses (holes)         | ASTM D 3887 | 15.5 $\pm$ 2holes/25 mm (1 in.)          |
| Instronball Burst       | ASTM D 3887 | 830 kPa (120 psi) min.                   |
| Thickness               | ASTM D 1777 | 1.0 $\pm$ 0.1 mm (0.040 $\pm$ 0.005 in.) |

- (4) Certification. The manufacturer shall furnish a certification with each shipment of inlet filters, stating the amount of product furnished, and that the material complies with these requirements."

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Raised Reflective Pavement Markers  
(Bridge)

April 18, 2003

This special provision was developed by the Bureau of Operations to provide statewide requirements for raised reflective pavement markers used on bridge decks. It should be inserted into contracts requiring raised reflective pavement markers on bridge decks.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80105m

## **RAISED REFLECTIVE PAVEMENT MARKERS (BRIDGE) (BDE)**

Effective: August 1, 2003

Add the following sentence to the end of the second paragraph of Article 781.03(a) of the Standard Specifications:

“The installed height for the reflective pavement markers shall be approximately 7.5 mm (0.3 in.) above the road surface.”

Revise Article 781.05 of the Standard Specifications to read:

**“781.05 Basis of Payment.** This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER, RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE), TEMPORARY RAISED REFLECTIVE PAVEMENT MARKER, and REPLACEMENT REFLECTOR.”

Revise the first paragraph of Article 1096.01(b) of the Standard Specifications to read:

“(b) The overall dimensions for raised reflective pavement markers shall be approximately 254 mm (10 in.) long by 140 mm (5.5 in.) wide and a maximum of 45 mm (1.76 in.) high. The overall dimensions for bridge raised reflective pavement markers shall be approximately 235 mm (9.25 in.) long by 149 mm (5.86 in.) wide and a maximum of 32 mm (1.25 in.) high. The surface of the keel and web shall be free of scale, dirt, rust, oil, grease, or any other contaminant which may reduce the bond.”

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Temporary Portable Bridge Traffic Signals

April 18, 2003

This special provision was developed by the Bureau of Operations to provide statewide requirements for temporary portable (i.e. trailer mounted) bridge traffic signals. It should be inserted into bridge contracts when the district wants the Contractor to have an option to post-mounting the temporary bridge traffic signals.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80106m



## TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNALS (BDE)

Effective: August 1, 2003

Description. At the Contractor's option, temporary portable bridge traffic signals may be used in place of temporary bridge traffic signals. Work shall be according to Article 701.06(b) of the Standard Specifications except as follows:

Materials. Materials shall meet the following Articles of Section 1000 – Materials:

| Item                          | Article/Section |
|-------------------------------|-----------------|
| (a) Traffic Signal Head ..... | 1078            |
| (b) Electric Cable .....      | 1076.04         |
| (c) Controller.....           | 1073            |
| (d) Controller Cabinet .....  | 1074.03         |
| (e) Detector Loop.....        | 1079            |

## CONSTRUCTION REQUIREMENTS

General. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

All signal heads located over the travel lane shall be mounted at a minimum height of 5 m (17 ft) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 2.5 m (8 ft) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation. All portable traffic signal units shall be interconnected using hardwire communication cable or radio communication equipment. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV of the Manual on Uniform Traffic Control Devices (MUTCD). The signal system shall be designed to continuously operate over an ambient temperature range between -34 °C (-30 °F) and 48 °C (120 °F).

When not being utilized to inform and direct traffic, portable signals shall be treated as non-operating equipment according to Article 701.04(b)(3).

Basis of Payment. This work will be paid for according to Article 701.08(c).

80106

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Transient Voltage Surge Suppression

April 18, 2003

This special provision was developed by the Bureau of Operations and the Bureau of Design and Environment to provide statewide requirements for transient voltage surge suppression of traffic signal controller cabinets. It should be inserted into all contracts containing traffic signal controller cabinets.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2003 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be available on the transfer directory April 18, 2003.

80107m

## TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)

Effective: August 1, 2003

Revise the first paragraph of Article 1074.03(a)(4) of the Standard Specifications to read:

“(4) Transient Voltage Surge Suppression. The cabinet shall be provided with transient voltage surge suppression. Transient surge suppression unit leads shall be kept as short as possible and ground shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. All transient surge suppression units shall be tested and certified as meeting this specification by an independent testing laboratory. One copy of each of the full testing report shall be submitted to the Engineer.”

Revise Article 1074.03(a)(4)a. of the Standard Specifications to read:

- “a. Surge Suppressor. The suppressor protecting the solid state controller, conflict monitor, and detection equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection assembly and stage two which shall include AC circuit protection.

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The stage one suppressor shall have two LED failure indicators for power ‘on’ and suppression ‘failure’ and shall meet the following properties:

| Stage One Suppressor               |                                   |
|------------------------------------|-----------------------------------|
| Properties                         | Criteria                          |
| “Plug-in” suppression module       | 12 pin connector assembly         |
| Clamp voltage                      | 250 V at 20,000 A typical         |
| Response time                      | Less than 5 nanoseconds           |
| Maximum continuous service current | 15 A at 120 VAC 60 Hz             |
| High frequency noise attenuation   | At least 50 dB at 100,000 Hz      |
| Operating temperature              | -40 °C (-40 °F) to 85 °C (185 °F) |

If the controller assembly includes a system telemetry module or remote intersection monitor, the status of the stage one suppressor shall be continuously and remotely monitored by an appropriate alarm circuit.

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and from either direction (source or load). The suppressor shall have a visual “on” indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for

power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall meet the following properties:

| Stage Two Suppressor                        |                                   |
|---|-----------------------------------|
| Properties                                  | Criteria                          |
| Nominal service voltage                     | 120 V at 50/60 Hz                 |
| Maximum voltage protection level            | $\pm 330$ V                       |
| Minimum voltage protection level            | $\pm 220$ V $\pm 5\%$             |
| Minimum surge current rating                | 700 A                             |
| Stand by power                              | Less than 0.5 Watts               |
| Hot to neutral leakage current at 120 V RMS | Less than 5 $\mu$ A               |
| Maximum response time                       | 5 nanoseconds                     |
| Operating and Storage temperature           | -20 °C (-4 °F) to 50 °C (122 °F)" |

80107m